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J. MARION SIMS AND THE VESICO-VAGINAL FISTULA: THEN AND NOW*

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PART I: HISTORICAL SKETCH

Ninety-five years ago in the town of Montgomery, Alabama, there stood a tiny hospital that must be reckoned one of the most remarkable hospitals of all time. It housed seven women, all negro slaves; all of them suffered from uncontrollable dribbling of urine, for all had a destruction of the wall separating bladder from vagina—one of the fearful consequences of hard childbirth. The hut—for it was little more—had been built by an obscure country doctor, J. Marion Sims; and he maintained it for the single purpose of proving his belief that the vesico-vaginal fistula, previously regarded as incurable, could be remedied by simple surgical means, the success of which had hitherto been thwarted merely because of mechanical difficulties peculiar to such work. Sims believed that he could overcome these difficulties, and he laboured for four years.

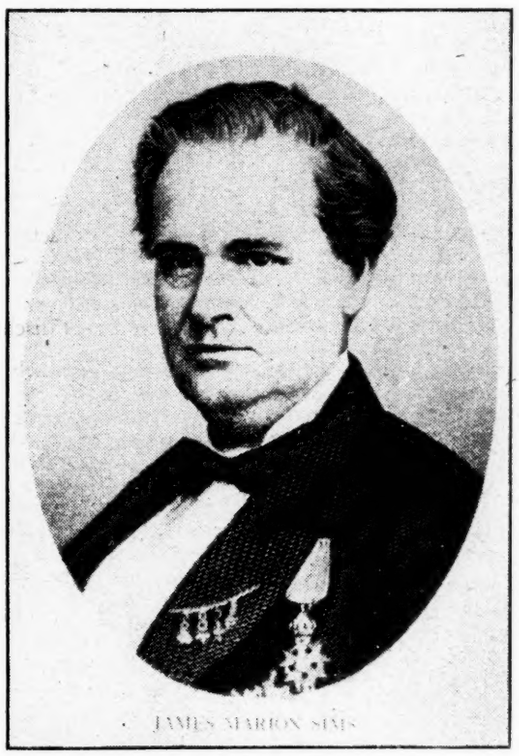

FIG. 1.—J. Marion Sims.

It was in the cotton-growing area of the Southern States that Sims worked, amid the plantations and slaves; all labour was supplied by the great coloured population. Whatever one's views may be on the lot of the negroes as slaves—and there are many who hold that the word was misapplied—there is no doubt that the mothers among them suffered untold hardships in childbirth; for rickety deformities and contractions abounded, and the women preferred to suffer in seclusion than to call for help at such time. So it came that greatly prolonged labour was common, and, even if not fatal, it led all too often to partial destruction of the pelvic organs, so that the woman was brought to a state of wretchedness hardly to be borne. Marion Sims was guided by a simple philosophy, and it was his firm belief that no happening in this world, even the most trivial, is without its meaning and purpose. Never was this more clearly proved than in his greatest work of curing the vesico-vaginal fistula.

Sims's First Cases

At the time when Sims began to take a real interest in his profession—for his early record was undistinguished, and more than once he sought to give up the practice of medicine—he had to examine, within a few days of each other, two negro women suffering from urinary incontinence. In both cases Sims diagnosed a vesico-vaginal fistula, and, in keeping with the opinion of the time, he reported to the owners of the women that cure was wholly impossible. Meanwhile he had been careful to consult every medical book within reach, and in none of them could he find any helpful advice. Soon afterwards he was requested to see yet another coloured woman with similar symptoms, but, believing that the consultation was useless, he firmly refused to comply. Ignoring his refusal, the owner sent the woman by train to town, and Sims was thus obliged to make examination against his will. Again as a matter of course he decided that nothing could be done, but as the girl came from a distance shelter was given for the night.

Sims Makes a Discovery

Early next morning the incident occurred that was to be the turning-point of Sims's career. An urgent message came to attend a woman who had been thrown from horseback. On arrival Sims found that the patient was suffering from extreme pelvic pain, which, in accordance with the teaching of the time, he believed must be due to sudden dislocation of the uterus. Sims resolved to examine the pelvis and replace the organ. Hitherto he had always avoided such examination: he had little knowledge of the disorders peculiar to women, and he disliked the subject. Now, however, he had to act; but how to do it? At this moment a long-forgotten remark by a teacher at the Charleston Medical College came back to him, and he proceeded to place the patient in the knee-chest position. What happened next can best be described in his own words:

> "So I placed the patient as directed, with a large sheet thrown over her. . . . I introduced the middle and index fingers, and immediately touched the uterus. . . . I turned my hand with the palm upward, and then downward, and

* Address given to the Oxford University Medical Society on October 29, 1940.

pushing with all my might, when all at once I could not feel the womb, or walls of the vagina. I could touch nothing at all, and wondered what it all meant. It was as if I had put my two fingers into a hat, and worked them around, without touching the substance of it."

Sims then goes on to explain how the patient's position had created a suction in the pelvis and how the air under atmospheric pressure had rushed in and ballooned the vagina to its fullest capacity.

"Then, said I to myself, if I can place the patient in that position, and distend the vagina by the pressure of air, so as to produce such a wonderful result as this, why can I not take the incurable case of vesico-vaginal fistula, which seems now to be so incomprehensible, and put the girl in this position and see exactly what are the relations of the surrounding tissues? Fired with this idea, I forgot that I had twenty patients waiting to see me all over the hills of this beautiful city. I jumped into my buggy and drove hurriedly home. Passing by the store of Hall, Mores and Roberts, I stopped and bought a pewter spoon. I went to my office, where I had two medical students, and said, 'Come, boys, go to the hospital with me.' 'You have got through your work early this morning,' they said. 'I have done none of it,' I replied: 'come to the hospital with me.' Arriving there, I said, 'Betsey,† I told you that I would send you home this afternoon, but before you go I want to make one more examination of your case.' She willingly consented. . . . Introducing the bent handle of the spoon I saw everything, as no man had ever seen before. The fistula was as plain as the nose on a man's face. The edges were clear and well-defined, and distinct, and the opening could be measured as accurately as if it had been cut out of a piece of plain paper. The walls of the vagina could be seen closing in every direction; the neck of the uterus was distinct and well-defined, and even the secretions from the neck could be seen as a tear glistening in the eye, clear even and distinct, and as plain as could be. I said at once, 'Why can not these things be cured? It seems to me that there is nothing to do but to pare the edges of the fistula and bring it together nicely, introduce a catheter into the neck of the bladder and drain the urine off continually, and the case will be cured.' Fired with enthusiasm by this wonderful discovery, it raised me into a plane of thought that unfitted me almost for the duties of the day. Still, with gladdened heart, and buoyant spirits, and rejoicing in my soul, I went off to make my daily rounds. I felt sure that I was on the eve of one of the greatest discoveries of the day. The more I thought of it the more I was convinced of it."

Early Failures

Sims made feverish preparations. New instruments were required, and the blacksmith, the dentist, and the jeweller were all laid under contribution. He writes:

"I did not send Lucy home, and I wrote to her master that I would retain her there, and he must come and see me again. I saw Mr. Westcott, and I told him that I was on the eve of a great discovery, and that I would like to have him send Anarcha back to my hospital. I also wrote to Dr. Harris, saying that I had changed my mind with regard to Betsey, and for him to send her back again. I ransacked the country for cases, told the doctors what had happened and what I had done, and it ended in my finding six or seven cases of vesico-vaginal fistula that had been hidden away for years in the country because they had been pronounced incurable. . . . Then I made this proposition to the owners of the negroes: 'If you will give me Anarcha and Betsey for experiment, I agree to perform no experiment or operation on either of them to endanger their lives, and will not charge a cent for keeping them, but you must pay their taxes and clothe them. I will keep them at my own expense.' Remember, I was very enthusiastic, and expected to cure them, every one, in six months. I never dreamed of failure, and could see how accurately and how nicely the operation could be performed."

† Sims makes a slip in the name; this woman was Lucy.

The great day came and the doctors assembled. Lucy was chosen. The operation started, and after an hour's work the opening in the bladder was closed to everyone's satisfaction. But Lucy became very ill; the fistula reopened, although to a less extent than before, and it was two months before the patient recovered her strength. Nothing daunted, Sims continued his work. Operation after operation was performed; methods were improved, skill and dexterity were developed; but no fistula was cured. One by one his helpers deserted him, until at last he was alone, and denounced as an unscrupulous charlatan. In desperation he trained his patients to assist at the operation on each other. Of this period he later wrote:

"My repeated failures brought about a degree of anguish that I cannot now depict even if it were desirable. All my spare time was given to developing a single idea, the seemingly visionary one of curing this sad affliction which not infrequently follows the law pronounced by an offended God when He said of woman: 'In sorrow and suffering shalt thou bring forth children.'"

But Sims's determination did not waver, and again he says:

"Nor was I alone in another sense, for I had succeeded in passing my own energy and enthusiasm into the hearts of the half-dozen sufferers who looked to me for help, and implored me to repeat operations so tedious, and at the same time so painful, that none but a woman could have borne them."

Thus four years passed. Sims's practice suffered. Money troubles appeared, and his health, undermined by constant work, now began to cause anxiety. But his skill had grown enormously. He had improved his tools. A self-retaining malleable tin catheter had been devised. The knee–chest position had been modified to a more tolerable semi-prone position. The original suture apparatus had also been discarded and a simpler device adopted which eliminated the need for clumsy vaginal rods and tubes. Of this last improvement he writes:

"Then I said, 'I am not going to perform another operation until I discover some method of tying the suture higher up in the body where I can not reach.' This puzzled me sorely. I had been three weeks without performing a single operation on either of the half-dozen patients that I had there. They were clamorous, and at last the idea occurred to me about three o'clock one morning. I had been lying awake for an hour, wondering how to tie the suture, when all at once an idea occurred to me to run a shot, a perforated shot, on the suture, and, when it was drawn tight, to compress it with a pair of forceps, which would make the knot perfectly secure. I was so elated with the idea, and so enthusiastic as I lay in bed, that I could not help waking up my kind and sympathetic wife and telling her of the simple and beautiful method I had discovered of tying the suture. I lay there till morning, tying the suture and performing all sorts of beautiful operations, in imagination, on the poor people in my little hospital; and I determined, as soon as I had made my round of morning calls, to operate with this perfected suture."

The Operation Succeeds

Still success eluded him. Sims then began to suspect that the constant tumefaction, the inflammation, and the cystitis which followed his operations might be due to the use of silk as a suture material.

"Just in this time of tribulation about the subject, I was walking from my house to the office, and picked up a little bit of brass wire in the yard. It was very fine, and such as was formerly used as springs in suspenders before the days of India-rubber. I took it round to Mr. Swan, who was then my jeweller, and asked him if he could make me a little silver wire about the size of the piece of brass wire.

He said Yes, and he made it. He made it of all pure silver. Anarcha was the subject of this experiment. . . . This was the thirtieth operation performed on Anarcha. . . . When the week rolled around—it seemed to me that the time would never come for the removal of the sutures—Anarcha was removed from the bed and carried to the operation-table.

FIG. 2.—Sims operating on a vesico-vaginal fistula. The patient is in the semi-prone position, and the correct use of his retractor is clearly shown. The originals of this picture and of Fig. 3 C were prepared under Sims's supervision for Savage's *Female Pelvic Organs*.

With a palpitating heart and an anxious mind I turned her on her side, introduced the speculum, and there lay the suture apparatus just exactly as I had placed it. There was no inflammation, there was no tumefaction, nothing unnatural, and a very perfect union of the little fistula."

The date was June 21, 1849, and Sims was then 36 years of age.

From that moment Sims's success in the treatment of fistula was amazing. All the subjects of his experiments were cured in a few weeks, and as patient after patient was restored to health his fame spread.‡ But new troubles now appeared. First there was a death in his family; then his own health gave way and he became the victim of a chronic form of dysentery endemic at that time in the Southern States. He became emaciated, was quite unfitted for work, and on many occasions believed that death was at hand. It was at this time—1851—that he decided to publish details of his method of curing vesico-vaginal fistula that others might continue where he had been forced to leave off. This paper is remarkable for the force and directness of the writing, and for the confidence shown on every page. It is a truly remarkable document to have been produced by a supposedly dying man.

‡ It is, however, incorrect to suppose that Sims was the first person ever to cure a vesico-vaginal fistula. This had occasionally been done before, but such success as had been achieved was due more to a combination of favourable circumstances than to the development and systematic application of sound methods. It is improbable that Sims had any knowledge of previous success when he engaged in this work. Gossett of London deserves special mention. In a letter to the *Lancet* in 1834 he described the closure of a vesico-vaginal fistula by methods nearly identical with those that Sims was to use fifteen years later. In particular, he advocated the use of gilt silver wire, saying: "It excites but little irritation and does not appear to induce ulceration with the same rapidity as silk or any other material of which I am acquainted." Despite his success Gossett's teaching did not endure.

Work at the New Fistu'a Hospital

But Sims did not die. For four years he went from place to place in search of health—and, be it added, in search of a means of livelihood. At last he settled in New York. Gradually his weakness left him and he was able again to turn attention to professional affairs. But the New York medical men would have none of him. They picked his brains, they even borrowed his instruments, but they gave him no work. At last, miserable and penniless, he made contact with an influential newspaper reporter. Clearly, if Sims could not get access to patients, patients must be given access to him. A public meeting was arranged, and Sims made an earnest plea for the establishment of a new hospital to be devoted to treatment of the vesico-vaginal fistula and like injuries. Generous support was forthcoming from certain ladies of New York society, and after many struggles and much opposition the hospital was brought into existence. There was never any doubt of its success, and patients crowded in from all parts of the country.

As if in happy augury, the first work in the new hospital was the most remarkable yet undertaken. The patient was Mary Smith, a recently arrived immigrant from Western Ireland,§ "a pitiable, ill-smelling, repulsive creature with extensively excoriated vulva, the result of constant escape of urine." An encrusted mass was discovered in the vagina, in size not less than a closed fist; it was thought to be a huge calculus. After great effort, and at the expense of much suffering to the patient, the object

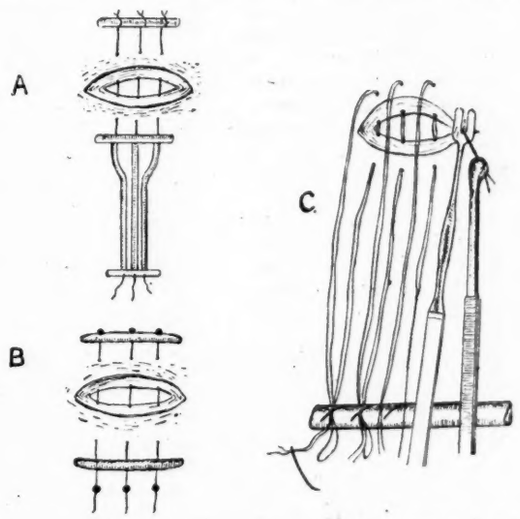

FIG. 3.—Sims's first, second, and third methods, redrawn from his original illustrations. Diagram C shows the use of pilot silk sutures to pull through the silver wires. The cleft spatula and wire-twister are also shown.

was dislodged: it was then found to be a wooden float such as is used for a fish-net. Her doctor had used this bobbin to plug the fistula in an attempt to stop the flow of urine, and at the same time to prevent the fundus of the bladder prolapsing into the vagina. Most of the base of the bladder and part of the urethra were destroyed, yet after many operations these organs were reconstructed and bladder function partly restored. Mary Smith became an assistant in the hospital and worked there for years.

A new name now enters the story. An old acquaintance of early days had recently married a Dr. Thomas

§ Records of this hospital show that 58% of the patients admitted with vesico-vaginal fistula came from different almshouses of Great Britain and from the Continent.

Addis Emmet; Sims at once took a liking to the young man and engaged him as assistant in the new hospital. No better choice could have been made, for Emmet in his time came to equal, and even excel, his master in skill and judgment. Some of Sims's later methods are believed to have been adopted through Emmet's influence, and Emmet was responsible for giving to the world the most comprehensive and valuable account of fistula work based on Sims's technique that has yet been written.

With Emmet's help more and more work was undertaken, and soon the hospital became inadequate. New ground had to be secured; and that, indeed, must have caused anxious thought, for the site finally chosen was the burial place of victims of a cholera epidemic twenty-five years before, and no fewer than 27,000 corpses had to be removed before building could be started. A new and much larger hospital at length appeared; a Charter was secured, and "The Women's Hospital in the State of New York" came into being. In more recent years there was again a change of site, and the Waldorf Astoria Hotel now stands on the old ground. The importance of this hospital goes far beyond the fact that it was founded by the genius, courage, and pertinacity of Marion Sims; it was indeed the first hospital, in the modern sense of the word, to be devoted to the treatment of diseases of women, and it thus marks the origin and recognition of gynaecology as a medical specialty in its own right.

Later Activities

Sims's later activities are full of interest, but they are of less concern with regard to fistula work. During the Civil War he left America for Europe, and here he met Simpson, Syme, and a host of other surgeons of the time. Of Syme he wrote: "I have seen, all over the world, great surgeons operate, in my own country, in London, and in Paris; but I have never seen such an operator." He records an experience with the recently introduced chloroform anaesthesia. While operating before a group of eminent French surgeons his patient, a French countess, suddenly stopped breathing and appeared to be dead. Among those present was Nélaton, who at once took command of the situation and directed that the patient should be hung head downwards by her legs. After some twenty minutes of artificial respiration in this position the Countess recovered. It is said that Nélaton was prompted to this action because of a discovery made by his son: a number of mice had been chloroformed, and some had been hung by their tails; these animals were later found to be twisting about in full vigour. The episode made a great impression on Sims; he described chloroform as "delicious and dangerous," and he never again used it in his fistula work. It appears that only once did he operate in London: on that occasion, at the Samaritan Hospital, he closed a large fistula to the satisfaction of the onlookers, but one week later the patient was dead. Examination showed that he had included the ureters in his sutures. This was the first time Sims had ever lost a patient by his operation.

In 1866 Sims's only book, *Clinical Notes on Uterine Surgery*, was published in London. This work made a deep impression on medical thought of the time, and it marked a turning-point in the development of gynaecology, which now became a surgical rather than a medical subject. Even at the present day matters of great interest are found in its pages; for example, the "fertile period" and its relation to the menstrual cycle is accurately described—half a century before its meaning was appreciated. The first successful artificial insemination for the treatment of sterility was by Sims. He, too, first recorded a cholecystotomy and gave the operation its name. Yet again, he was the first to advocate free exploration of the abdomen after gunshot wounds, and it was the disregard of his advice on this matter that deprived President Garfield of his only hope of life after the attempted assassination.

At a later date, during the Franco-Prussian War, Sims commanded an Anglo-American Ambulance Corps—must these things ever be!—and at the field of Sedan controlled a hospital of 400 beds. European honours were showered on him. He went from success to success. He attended some of the most distinguished people of the time, including the Empress Eugénie herself; the instruments used on that occasion are to be seen in the present Women's Hospital of New York. In 1881, when in England, he all but succumbed to pneumonia, but was nursed back to health by the "great kindness and skill" of Dr. Ord of St. Thomas's Hospital. Two years later he died suddenly at his home while still in the midst of full professional activities.

The obituary notice in the *British Medical Journal* of November 17, 1883, reads as follows:

> "On November 13 last there died at New York a man who bears a name that will ever be identified with gynaecology; indeed, Dr. J. Marion Sims must be considered as the establisher of that branch of medical science which before his day had been looked upon as a mere accessory to obstetrics."

A contemporary, Dr. Mundé, describes Sims thus:

> "Personally, Dr. Sims was one of the most amiable and lovable of men. A genial, hearty manner, so common to the sons of the 'Sunny South,' a certain sympathetic charm of voice and action, which few could resist, and a frankness and kindliness, especially pleasing to the young men who called to ask his counsel; a warm-hearted, impulsive nature, easy to arouse to anger, and ready to melt in tears; forgiving, gentle, playful, even, at times; modest and unassuming; in fact, a nature of which even the faults seemed lovable—these were the characteristics of J. Marion Sims."

PART II: PERSONAL OBSERVATIONS

My own interest in the vesico-vaginal fistula was early aroused by contact with enthusiastic workers—the late Prof. Toth of Budapest, and particularly Dr. Hunner of Baltimore, who, with Prof. Cullen, has imparted something of the Sims tradition to the gynaecological clinic of the Johns Hopkins Hospital. Later experience has kindled this interest, and brief notes on a few unusual or difficult cases may not now be out of place. But first, what is the modern attitude to Sims's operation?

Modern Attitude to Sims's Operation

The vesico-vaginal fistula is becoming increasingly rare, and in this country, at least, has come to be regarded almost as a surgical curiosity. But this happy result of improved obstetrics has also had the less favourable effect of greatly lessening the experience of individual workers, and a sadly diminished interest in the subject is reflected in modern books of treatment. Further, the introduction of the operation of vesical exclusion has tempted many surgeons to resort almost at once to a transplantation of ureters into colon when faced with difficulty in effecting repair of a urinary fistula by direct methods. There may be very rare occasions when no other choice is open, but there is little doubt that an adequate trial of vaginal methods is often shirked because of an over-dread of the apparent difficulties which Sims in his time did so much to overcome. Similar remarks can be made regarding the modern operation of transabdominal approach to the fistula. Naguib Pacha Mahfouz, who has recently described his experiences in the treatment of 400 cases of urinary fistula—some of them of the most amazing nature

—has never in recent years resorted to the latter operation, and has but little use for the first.

Sims's original operation, consisting essentially of "edge-paring," has also been criticized, and modern workers usually employ a flap-dissection of vaginal wall from bladder as first described by Colles of Dublin (a name better known perhaps in fracture work than in gynaecology). Development of this operation has led many to suppose that Sims's technique is outdated. In this I do not agree. I have used the flap operation with complete success on a number of occasions, but I also believe that there are times when adequate flap-splitting is impossible and when the older and simpler methods of Sims are indeed the only ones which can be employed. In this particular field the skill—almost legerdemain—of Sims and Emmet may be gone, but advantages of which they knew little—such as antisepsis, reliable anaesthesia, and improved lighting devices—make good our loss. Sims's position, Sims's speculum, Sims's method of edge-paring, and Sims's silver wire could achieve the seemingly impossible a century ago, and they can do so now. At this point it is fitting to mention the name of Herbert Spencer, who has been one of the foremost exponents of Sims's methods in this country. With a specially devised tubular needle for placing the silver wire sutures, Spencer repeatedly succeeded in effecting a cure even in patients who had been subjected to previous operations by other methods.

Some Unusual Cases

One of my cases strikingly illustrates the value of Sims's methods.

A patient had a fistula which was situated high in the vagina where retraction of scar tissue had so altered the normal anatomy that the cervix uteri had been drawn up far behind the symphysis pubis. Under anaesthesia, inspection was made with the woman in the lithotomy position; it was impossible to see even the position of the fistula. The patient was then placed in Sims's semi-prone position and Sims's speculum introduced. Exposure was still supremely difficult, but a bougie passed into the bladder and used as a lever enabled fleeting glimpses to be obtained of a large opening almost completely hidden behind bulging and oedematous bladder mucosa. The relationship of the parts, at first puzzling, was suddenly made plain by the discovery that the anterior lip of the cervix had sloughed away, and that the remainder of the cervix had so rotated forwards that it projected into the bladder cavity and acted as a partial plug to a large fistulous opening. An hour's sustained effort served only to demonstrate the peculiar relation of cervix to bladder; operation seemed impossible. Resort was then made to Sims's original knee-chest position. Improved exposure resulted, and it was now possible, although in painfully slow and distressingly imperfect fashion, to pare the scarred and retracted edges of the fistula. Silver wires were laid by Sims's method and the opening closed. No more was hoped for from this procedure than that a part of the fistula might remain closed, enabling a later operation to be undertaken with greater ease and certainty of success; yet, to my delight, the entire fistula remained closed and urinary incontinence was completely cured by this one operation. No complicated procedure could have done more than this; nor can I suppose, even by extravagant imagination, that flap-splitting was possible in such peculiar and difficult circumstances.

The size of the fistula is no indication of the difficulty of treatment. This is illustrated in the following case.

A patient had a difficult labour necessitating the use of crushing instruments; the uterus had ruptured and a subtotal hysterectomy had been performed. Leakage of urine had continued for months without change. Inspection of the vagina with the patient in the lithotomy position revealed a huge, red, velvet-like mass filling the vagina; this was found to be the anterior wall of the bladder prolapsed through a rent in the vesico-vaginal septum, so that the entire organ was virtually inverted into the vagina. The edges of the gap were completely obscured by the bulging tumour, but placing the patient in Sims's position restored normal relations: the tear was then found to extend from high in the damaged cervix, through the whole of the floor of the bladder, to end in the upper part of the urethra. As some anxiety was felt lest the ureters might be injured by the proposed operation, a cystoscope was passed. By pinching together the labia it was possible to distend both the bladder and the vagina with fluid. The positions of the ureteric openings were then easily defined, and catheters were passed: these proved to be of considerable help in preventing a dangerous positioning of the sutures. An operation of the flap-splitting type was performed and immediate and complete union resulted. It must be added that some six months later, following an attack of severe bronchitis, a slight urinary leak was traced to a minute opening in the lower portion of the wound: this opening was easily and permanently closed by a second operation.

Two other cases were remarkable because of the mental depression of the patients.

In one, a destruction of tissue over the upper part of the urethra had been caused by an obstetric injury; the condition had been aggravated by previous unsuccessful efforts at operative treatment made elsewhere. It was impossible to close the wide aperture without using excessive tension. Two deep lateral vaginal incisions were now made, and the damaged tissues were then comfortably approximated in the midline. The lateral incisions were left open, and apart from a rather free ooze of blood for twenty-four hours did not cause trouble. Three weeks later a tiny sinus was found communicating with the upper urethra: the edges were touched with a cautery needle, and healing thereafter was complete and final. The other patient had a fistula which had been present for years and which had already resisted operative treatment: her surgeons had told her that she was quite incurable. Operation in Sims's position was easy, and convalescence was quite uneventful. Two weeks later this patient was mentally and physically a new woman.

In dealing with cases of fistula I have always used Sims's semi-prone position when access has been difficult. Occasionally the original knee-chest position has been found to give increased benefit. Silver wire has been used exclusively, or, in the case of the modified operation, at least for the vaginal wall. In one or two cases silkworm-gut has been substituted, but the use of this substance necessitates tying knots high in the vagina, which is a clumsy procedure. If, however, silver wire is used the ends can be gently twisted under direct vision, even when they are far from the operator, and the required nicety of tension obtained with certainty.‖ I have always insisted on having the patient nursed in the prone position, for by so doing there is, I believe, a lessened risk of urine forcing its way between the stitches of the repaired septum. It is my experience that if the patient has been accustomed to this position before operation any subsequent discomfort is tolerated with remarkable good will. A catheter with a plain end, but with an extra lateral eye, is left in the bladder, and is tied to a bridge of silkworm-gut crossing the vulva. It can thus be removed, cleaned of mucus and phosphatic deposit, and reinserted as often as may be necessary without disturbance to the patient. The urine is led to a receiving bottle standing at the side of the bed, and mild suction is constantly maintained by a Bunsen apparatus. The catheter and bottles require constant supervision, but the patient herself is usually quick to learn the necessary adjustments. One thing is certain: success in fistula work largely depends on the amount of supervision that the surgeon himself is able to give to post-operative treatment—above all, to ensure that free drainage is maintained from the bladder. The slipping of a badly

‖ We know now that Sims's success with silver wire was also due to lessened sepsis. Compared with unsterilized thread it is "clean." Moreover, it probably liberates minute amounts of soluble salts which result in the suture lying in its own antiseptic channel. After using silver-wire sutures in a facial operation Sims writes: "Their removal was like that of a delicate ear-ring from the ear long used to wearing it."

applied catheter, a mucus plug, or a phosphate encrustation may easily turn success to failure.

Conclusion

The treatment of vesico-vaginal fistula has a fascination of its own. No branch of surgery calls for greater resource, never is patience so sorely tried, and never is success more dependent on the exercise of constant care both during operation and, even more perhaps, during the anxious days of convalescence. But never is reward greater. Nothing can equal the gratitude of the woman who, wearied from constant pain, depressed by an ever-growing sense of the humiliating nature of her infirmity, and desperate with the realization that her very presence is an offence to others, finds suddenly that she is restored to full health and able to resume a rightful place in the family—who finds, as it were, that life has been given anew and that she has again become a citizen of the world. To J. Marion Sims, more than to any man, is the honour for this transformation due. And if in these days a moment can be spared for sentimental reverie, look again, I beg, at the curious speculum and, gazing through the confused reflections from its bright curves, catch a fleeting glimpse of an old hut in Alabama and seven negro women who suffered, and endured, and had rich reward.

Two of the patients described were treated in the obstetric unit of University College Hospital, London; another in Hammersmith Hospital, L.C.C. (British Postgraduate Medical School). I gratefully acknowledge my thanks to Prof. F. J. Browne and to Prof. James Young for facilities given to me in these hospitals.

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THE REPAIR OF A VESICO-VAGINAL FISTULA BY A NEW TECHNIQUE

BY

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The difficulties experienced in the operative repair of a vesico-vaginal fistula and the numerous resulting failures are offered as a sufficient excuse for the description of a new technique which holds promise of good results even though it has at present been used on only a single case, that case being completely successful.

Clinical History

The patient, an otherwise healthy woman aged 39, had had a hysterectomy for a non-malignant uterine disease nine months previously at another hospital and from that time was incontinent. She was referred to me with a request for treatment. A large centrally placed deficiency situated well above the level of the internal sphincter and easily admitting two fingers was found in the vesico-vaginal septum. The patient was continually wet when up and about, but in the recumbent position, as with many other cases of vesico-vaginal fistula, she was able to retain her urine and to pass it through the urethra. This is because the posterior wall of the vagina comes into contact with the opening in the anterior wall and thus acts as an obturator. The idea of the operation was suggested by this question, Why should not the posterior vaginal wall be made into a permanent obturator?

The Operation

The bladder was opened through a free midline suprapubic incision. The size of the fistula was confirmed as being somewhere between that of a florin and a half-crown. The margins of the opening were thin and would have offered poor material for the usual flap repair. They were completely epitheliated with healthy mucosa, the vaginal and bladder membranes meeting at the edge of the orifice. The vault of the vagina (the uterus having gone at a previous operation) was on a level with the upper lip of the fistula and thus there was not much fornix. In brief, the operation consisted in dividing the vagina across and using the top portion to close the fistula. The line of section was placed as low down that tube as easy working allowed (Fig. 1). It

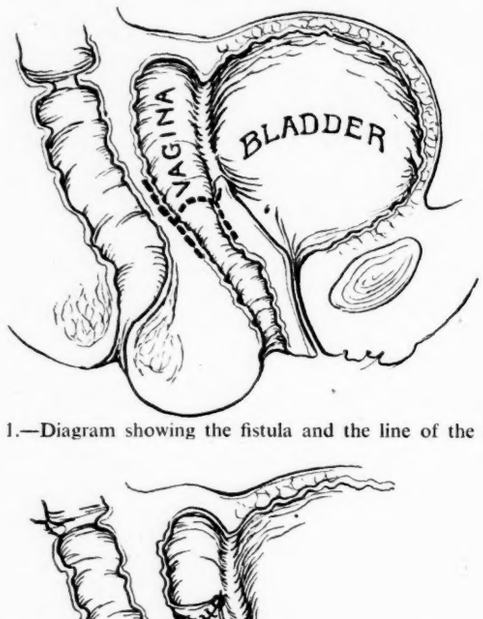

FIG. 1.—Diagram showing the fistula and the line of the flaps.

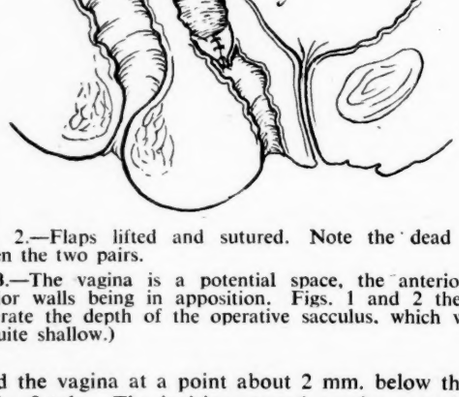

FIG. 2.—Flaps lifted and sutured. Note the dead space between the two pairs.

(N.B.—The vagina is a potential space, the anterior and posterior walls being in apposition. Figs. 1 and 2 therefore exaggerate the depth of the operative sacculus, which was in fact quite shallow.)

encircled the vagina at a point about 2 mm. below the lower lip of the fistula. The incision started on the posterior wall, which was steadied and elevated by a transfixion suture, and when it reached the anterior wall the margin of the fistula was drawn forward to trace the cut behind and below the edge of the opening. All coats of the vagina were cut through, and by blunt dissection the edges both above and below the incision were undercut and elevated for one-third of an inch or rather more (Fig. 2). Several sutures were now introduced to close the upper end of the lower part of the divided vagina and, having been tied, two of these stitches were taken on a pair of Spencer Wells forceps and were pushed through the suture line down towards the vulva, where they were received by an assistant and secured by another pair of forceps, thus inverting the flaps. A new vault for the vagina at a lower level was thus made.

A drainage tube should at this stage have been pushed through the suture line towards the vulva and made to sit with its upper end above the new vaginal vault. In actual fact

I introduced my drainage from below at the end of the operation, and probably on account of faulty disposition this led to the only complication encountered in the after-treatment, for a small haematoma formed in the dead space between the two pairs of flaps and came away per vaginam about the fifth day, a little colicky pain preceding this event. The trouble was at an end within thirty-six hours. The margins of the upper segment of the divided vagina were now approximated by interrupted sutures, the opening in the floor of the bladder being thus closed.

By the above procedure both pairs of flaps were turned with their epithelial surfaces everted, and the attempt was made to arrange for some appreciable space to intervene between the new vaginal vault and the suture line in the bladder base. The greater the distance, within reason, between these two structures the greater the security against leakage of urine—temporary or permanent.

The bladder was closed around a tube in the usual way, care being taken to ensure that the end of the tube did not press on the repair in the bladder floor. My personal preference is for keeping the bladder dry by suprapubic suction, and this was used. After a few days of suction drainage a self-retaining urethral catheter was substituted, being retained for a week. The suprapubic wound remained dry throughout, and convalescence was uneventful except for the small incident of the haematoma. The suprapubic wound sealed immediately after removal of the tube and healed virtually per primam, but as a precautionary measure the patient was kept in bed for three weeks.

Result

The patient was re-examined seven weeks after the operation, when she said she was in excellent health and was continent. The bladder, however, was still a little irritable, and if the call to micturate was not immediately obeyed a drop or two of urine might be lost involuntarily. This was quite evidently an active incontinence resulting from a cystitis which had not completely subsided, and was not due to leakage through the fistula. Vaginal examination revealed a longer tube than I had expected, it being estimated as one and three-quarter inches to two inches in length. The vault was firmly united.

At cystoscopy the urine withdrawn from the bladder was faintly turbid, and on microscopical investigation showed a few pus cells and some scanty organisms. The usual 200 c.cm. of fluid was used for the examination without discomfort. The mucosa of the body of the bladder was of normal appearance and vascularity. The neck, trigone, and ureteric orifices showed a moderate degree of oedema, accounting for the slight bladder irritability above noted.

The operation area was the centre of chief interest. The vaginal implant formed a large shallow depression. There was not a great deal of overhang, so that every portion of its walls was in full view. The mucosa lining it was indistinguishable from bladder mucosa. It had the same sandy colour, the same individual vascular stems emerging through the membrane and breaking up into tufts. If I had not known its origin I should have regarded it as healthy vesical mucosa. There was no sign of inflammatory reaction here. At the highest point a puckered scar marked the position previously occupied by the cervix. The line of junction between the vesical and vaginal sections was very evident. It formed a perfect circle, the margins of which were everywhere prominent, but especially so in the lowest third, where they slightly overhung the subjacent trigone. Healing was complete, with no sign of stitch marks. Indigo-carmine was injected intravenously, and appeared early and copiously from each ureteric orifice.

Discussion

The advantage of the operation above described is that it uses thick healthy well-nourished flaps which can be cut to any required size. Thin ill-nourished inadequate flaps and tension are the causes of failure in so many operations for vesico-vaginal fistulae. These features appear to be completely overcome in the case reported. The operation presented no technical difficulties.

How will the vaginal mucosa behave as a constituent part of the bladder wall? This remains to be seen. It is, however, common knowledge that it stays healthy when continuously sodden with urine as in the base of a vesico-vaginal fistula. I believe that it will give no trouble, and the cystoscopic appearances above described support this view.

A shallow sacculus lying above the interureteric bar resulted from this operation. I believe it will drain perfectly. Certainly it should do so in the sitting posture.

Will this operation be applicable when the uterus has not been removed? The presence of a uterus would obviously require the provision of an outlet for menstrual and other discharges. Perhaps it may prove possible to cut the flaps so as to meet this desideratum. If not, the patient would probably be consoled for the loss of her uterus by the cure of so distressing and unsocial a condition as a vesico-vaginal fistula.

TREATMENT OF OUT-PATIENTS BY ELECTRICAL CONVULSANT THERAPY WITH A PORTABLE APPARATUS

BY

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The treatment of various kinds of mental disorder by means of artificially induced convulsions is by now so well known that there is no need to preface an article of this kind with a historical review of the work of other investigators. Furthermore, so many articles dealing with the treatment of schizophrenia with the electrical apparatus designed by Profs. Bini and Cerletti (or modifications of it) have appeared in the medical press during the last year that we do not consider it necessary even to summarize recent work on electrical convulsant therapy.

As the title of this paper suggests, its object is to give some account of a special application of the treatment carried out with a new type of apparatus. In the course of our investigations, as will become apparent later, we were able to observe several interesting clinical phenomena and to simplify the technique employed by other workers. It occurred to us that it has so far been very difficult to evaluate properly the usefulness of convulsant therapy in general, if only for the reason that, for the most part, the treatment has been carried out on mental hospital patients—i.e., patients whose mental disorder was already sufficiently advanced to require their certification or their detention as voluntary patients in a mental hospital environment. One of the great advantages of pyretotherapy in the treatment of dementia paralytica is that the treatment can be undertaken in a general hospital or a private nursing home long before the question of the certification of the patient requires consideration. This led indirectly to the use of pyretotherapy (e.g., by means of the inductotherm) in a great number of clinical conditions unconnected with G.P.I.

All experienced workers are agreed that the success to be expected in the treatment of schizophrenia depends on treating the condition early enough. By "early" we do not wish to emphasize the time factor unduly, but rather to indicate the degree of schizophrenic disintegration. It therefore seemed worth while to us to treat true

borderline cases—i.e., patients who could not, strictly speaking, be considered psychotic, or who had only one leg over the frontier, as it were. The majority of such patients are quite unsuitable for admission to mental hospitals, and do not require in-patient treatment in general hospitals; many of them, in fact, are leading, and continue to lead, a normal life in the outside world. It was with all these considerations in mind that we constructed a cheap, compact portable apparatus for use under out-patient conditions.

Source of Patients and General Procedure

The majority of the subjects treated and under treatment are patients attending the department of psychological medicine at St. Bartholomew's Hospital. Some were treated (and are being treated) in the consulting-room of one of us (E. B. S.), and others—under semi-out-patient conditions—in a private nursing home for the treatment of functional nervous disorders (Riverhead House, Riverhead, near Sevenoaks). The Barts patients received treatment once a week, the others twice. Patients are instructed to cut out the meal preceding their treatment, although they are allowed to have a cup of tea and a piece of toast. The treatment is given with the patients lying on a couch or bed; patients are made to empty their bladders immediately beforehand. They are not required to undress, and they may even retain their shoes. Naturally the collar is loosened in the case of men, and all hard articles which might dig into the patient are removed from the pockets; dentures must of course be removed. The next step is to scrub up the temporal region on both sides with ether soap, thereby removing all traces of sweat, sebum, and grease from the skin and hair. The soap is washed off with saline solution. There appears to be so little anxiety associated with electrical convulsant therapy that the patients almost invariably assist one good-humouredly to adjust the electrodes. This is in striking contrast to what occurs in cardiazol treatment. We have abandoned the use of all contact pastes, which we found to be both messy and unnecessary, although some form of contact paste is advocated by other workers. The patient then has his fit, the voltage used being determined (at least in part) by the skull A.C. resistance. On recovering full consciousness the patient is made to recline quietly on a couch for a short while—anything from half an hour to one hour. He is then perfectly able to return home by an ordinary means of conveyance or even on foot.

Apparatus

The apparatus is of small size, and is housed in a case which is finished in polished black cellulose with chrome carrying-handles. Its approximate dimensions are 14 in. long, 7 in. wide, and 5½ in. deep; weight about 20 lb. It is fitted with three-way earthed plugs, with ejector fuses in both the mains and patient's circuits. It has pilot lights indicating live mains and time switch. The patient's equivalent A.C. resistance is calibrated from 0 to 1,000 ohms and is balanced on a first-grade moving-coil galvanometer with metal rectifier. The voltage selector covers voltages from 20 to 150 by 5-volt stages. The time base covers from 0.1 to 0.5 second and operates an electronic time switch of constant accuracy. (In our first apparatus we used a motor-driven time switch, as shown in the accompanying illustration of the circuit. In that apparatus the patient's resistance was measured by means of direct current.) A push-button operates the electronic time switch and applies the shock. The channel selector switch is in front of the push-button.

The Electrodes, etc.

The electrodes consist of two plates of soft electrode metal, 5 × 4 cm., with rounded corners, with 4 ft. of insulated flex having terminal ends soldered to each plate. We found that a 3-in. bandage of latex rubber 24 in. long, perforated so as to carry studs, is the most convenient method of holding the electrodes in position. Rectangular rubber sponges, 4 × 5 × 3 cm., placed on top of the metal electrodes, together with the latex bandage, provide a configurating even

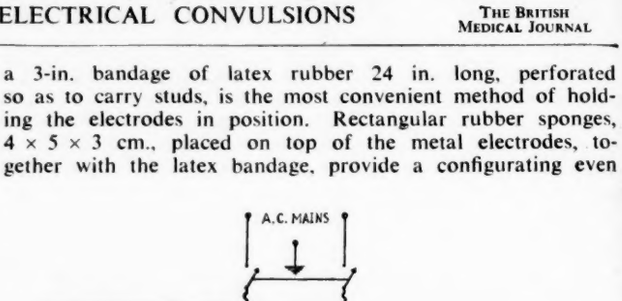

Diagram showing the circuit used in the apparatus.

pressure to the electrodes against the head. Two layers of lint soaked in sodium chloride solution of any strength from 20% up to saturation are interposed between the head and the metal electrode.

Resistance

Primarily with a view to obtaining some idea of the voltage to apply across the skull, and in consequence to estimate dosage in terms of current and time, resistance measurements have always been made. There are many ways of measuring resistance to the passage of current, and the nature of the current to be used must be considered, as must also the nature of the resistance or conductor itself. Thus if one passes direct current, alternating current, or high-frequency current through a conductor, the resistance it will offer will vary, depending on whether it is electrolytic, has inductance, or has capacity.

Now in considering the resistance of a part of the human body we must regard it as a complex electrolytic conductor, since it consists of tissues principally bathed in NaCl solution together with a great many other ions also in solution. Previous workers have used a direct-current method to measure, presumably, the resistance offered by the electrolytic body to an alternating current! If a direct current is passed through an electrolyte, electrolysis occurs and conditions arise which tend to oppose the electrolysing current, but since alternating current cyclically flows in one direction only for 1/100 second, when it changes polarity, direct-current electrolytic changes do not occur. Thus an electrolyte which presents considerable resistance to direct current may present virtually no resistance to alternating current. Moreover, different methods of measuring resistance by direct current will show different readings of the same electrolytic conductors, depending on the amount of electrolysis and the current flowing to make the measurement.

Fleming, Golla, and Walter, using a direct resistance-measuring current of 1 milliampere, find the patient's head resistance to be 450 to 1,200 ohms, while greater resistance than this, they say, suggests faulty electrode contact. Using a similar method, Kalinowsky finds the resistance to be 400 to 1,000 ohms, and determines which voltage is to be applied, although it is agreed that Ohm's law is not applicable and that the principal value of resistance measurement is to ensure good electrode contact. Shepley and McGregor do not state what patient's head resistance to expect, but their ohmmeter reads from 0 to 2,000 ohms, with a multiplier to 4,000 ohms.

Using a very accurate Wheatstone bridge with a current limiter to keep the patient's measuring current to not greater

than 200 microamperes direct current, which is just below the limit of sensation, we found that a patient's transtemporal inter-electrode resistance with properly applied electrodes was 4,000 ohms. With an alternating-current bridge it was 312 ohms. This is an example of the fantastic discrepancy between direct-current and alternating-current resistance measurements. On applying a voltage of 90 volts a current of 288 milliamperes was passed.

On the question of electrodes and their resistance we had interesting results: two layers of lint soaked in a 20% NaCl solution were placed between two electrodes, 4 × 5 cm. The interelectrode resistances of the pad were:

(1) By direct-current Wheatstone bridge (electrode current: less than 200 microamperes direct current), 1,650 ohms.

(2) By standard ohmmeter (electrode current: less than 1 milliampere direct current), 370 ohms.

(3) By alternating-current bridge (electrode current: less than 200 microamperes R.M.S.), 0.12 ohm.

A voltage of 2 volts R.M.S. was applied across the pad and a current of 16.6 amperes was passed. Thus Ohm's law applies to this latter measurement.

It was in view of these considerations and observations that we finally decided to incorporate an A.C. resistance circuit in our set, consisting of a resistance bridge excited by a low-voltage isolation transformer.

Time and Voltage

Although, as has already been indicated, it is possible to vary the time of the passage of the current in the shock circuit (i.e., through the patient) from one-tenth to a half of a second we have never found it necessary to exceed the minimal limit of one-tenth second. The voltages used have in our present series of cases varied from 80 to 100, the upper limit having been found necessary in the case of one patient only. In the majority of cases 90 seemed to be the voltage of choice. These findings differ from those of other workers, such as Kalinowsky, who found that the average voltage varied between 100 and 120.

Measurement of Actual Amount of Current Passed through Patient

The apparatus employed by previous workers, notably Bini and Cerletti, includes a device for measuring the actual amount of current passed through the patient's body. This in our view makes the apparatus unnecessarily bulky and expensive; and we fail to see that that measurement provides the investigator with information of any value. With our apparatus, which gives an accurate resistance reading that has a meaning, that information can be obtained by a very simple piece of mental arithmetic, being just a factor of the data already provided.

Method of Recording Cases.—We have found the following method of recording economical and convenient:

No. of Treatment	Date	Resistance (ohms)	Voltage	Fit
3	4/x/40	350	90	1

Remarks.—Good major fit. Violent struggling after cessation of true clonic phase.

Nature of Fit

All the fits so far observed have been indistinguishable from true epileptic fits—i.e., the epileptic cry (as often as not); the tonic phase accompanied by cyanosis; the clonic phase followed by major convulsions; as often as not, automatic reactions of various kinds preceding the return to full consciousness. Amnesia for the whole series of events—and for a varying degree retrograde—invariably occurs. Petit mal attacks may occur—(*a*) if the voltage has been insufficient; (*b*) if, owing to faulty adjustment, the electrodes have slipped, causing bad contact; (*c*) if the current-limiter in the shock circuit trips too readily. According to our experience it is very undesirable to be satisfied with one or even more minor fits, as these leave the patient for a while disorientated as to time and place with a retrograde amnesia reaching back for several hours. Patients find this a disagreeable and frightening experience, whereas major fits are followed by no trace of anxiety. Our procedure, then, if closure of the shock circuit is followed by a petit mal attack, is to ascertain and remedy the cause, to wait for just the moment when the patient has recovered full consciousness, and to produce a major fit.

Clinical Material

So far we have treated patients (eighteen in all) showing the following conditions: (1) hebephrenia; (2) paranoid schizophrenia; (3) the schizophrenic type of depression; (4) schizophrenia simplex; (5) manic-depressive psychosis—mixed phase; (6) manic-depressive psychosis with nihilistic delusions and corresponding somatic hallucinations; (7) stuporous melancholia; (8) involutional melancholia; (9) manic-depressive psychosis, hypochondriacal type, complicated by morphinism; (10) schizoid psychopathy with acute anxiety symptoms; (11) schizophrenia with alcoholism; (12) multiple tics. Since this paper is in the nature of a preliminary communication, mainly methodological and technological in its scope and purpose, and since the greater number of the patients concerned are still under treatment, it would be out of place to expand this section. However, a few clinical observations may not be considered improper even here and now. In general, it may be said that, with very few exceptions, therapeutic results have been most striking and encouraging. To take some illustrative cases haphazard from the above-mentioned groups:

(*a*) *Multiple Tics.*—A girl aged 20 has had severe tics involving head, face, arms, hands, legs, together with sniffing, coughing, and teeth-grinding, since the age of 3. In addition she has always felt tense and "woolly in the head." She has had nine fits, is now symptom-free, and declares she feels easier in her mind than she has ever felt in her life.

(*b*) *Manic-depressive Psychosis (Mixed Phase).*—The patient is a doctor, aged 36, with a pre-psychotic temperament chronically hypomanic. The present attack had lasted for five months. After the first fit he became acutely hallucinated and agitated: he heard people talking against him in the walls, and heard his brother's voice talking from the wardrobe. After the second fit he quieted down and became rather depressed again. Two days after the third fit he was restored to *his* norm and was able to resume the conduct of his practice.

(*c*) *Paranoid Schizophrenia.*—This patient, a man aged 23, was complaining of loss of interest in work and of affection for his friends and relatives for two years. He was argumentative and aggressive, moody and chilly, and suspicious of everyone. Whilst in hospital under observation for four days he complained that the patients in the ward were plotting against him. He was given ten fits, and became completely symptom-free, friendly, and cheerful. His fiancée stated that he was so much more agreeable that he was almost unrecognizable.

(*d*) *Schizophrenia with Alcoholism.*—This woman patient was seen for the first time by one of us (E. B. S.) on May 1, 1940. She was resident in a private mental hospital and had been certified in October of the previous year. She was confused, hallucinated, depressed, and aggressive. She had a history of alcoholism dating back to the age of 18. The original diagnosis was chronic alcoholic hallucinosis; our diagnosis was schizophrenia with symptomatic alcoholism. The patient received in all nine fits in the consulting-room. She came for treatment as an out-patient accompanied by nurses. It had been planned for her to have the full course of treatment (i.e., twenty fits), but treatment was discontinued on August 19 for certain non-clinical reasons. On October 2 the medical superintendent wrote: "Just a note to let you know that X. has been making very good progress indeed. I am sure that this great improvement is due to the electric-shock treatment you gave her. . . . There is no evidence of any

hallucinosis now . . . her manner is much more normal, and her conversation is more coherent and reasonable. I think that she will soon be well enough to go on leave on trial."

Summary and Conclusions

A case is stated for the use of electrical convulsant therapy under out-patient conditions.

A portable apparatus suitable for such a purpose is described.

Certain modifications in technique and procedure associated with the use of this apparatus are set out, together with their advantages.

The clinical results so far obtained are regarded as encouraging, and will, it is hoped, be made the subject of a further communication.

ERYTHROMELALGIA

BY

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In 1878 Weir Mitchell described a condition of redness and burning pain of the extremities for which he coined the name "erythromelalgia." He considered the lesion to be a rare vasomotor neurosis of the extremities. The condition has since been described and discussed by a number of observers, and in reading these descriptions one cannot help being struck by the confusion which has arisen—a confusion so great that it has led some authors to doubt whether erythromelalgia is a definite disease. This confusion no doubt has its origin in the fact that a combination of redness and pain is a frequent concomitant of many different diseases of the peripheral circulation. We believe, however, from our experience that the lesion described by Weir Mitchell does exist as a separate entity—that is, it does occur in a pure form unaccompanied by any clinical signs of peripheral vascular disease. It is undoubtedly very rare, and in the course of nine years in a busy "neurovascular" clinic we have seen but four cases.

Symptoms

The patients are usually young adults, and the condition is probably more common in women. The attacks of redness and pain are brought on by warmth, by exercise, and by the dependent position of the limb. They may occur in the hands, but are more often seen in the feet. At first the trouble is most evident in the heat of summer, but as time goes on the attacks become more severe and last longer, occurring also in the winter. The pain is described as of a burning character, limited at first to the toes or to the heel, but later involving the whole foot. It is much aggravated by warmth, as of bedclothes, by the dependent position, and by walking. It tends to get worse, and may make the patient's life a well-nigh intolerable misery: one of our patients had spent six months in bed, unable to tolerate the lightest covering on the feet.

In an attack the feet are bright red and the skin may be extremely tender to the lightest touch; the appearance of the foot is like the erythema of a burn of the first degree. We have not seen the throbbing arteries which Weir Mitchell, perhaps with a touch of drama, added to his list of physical signs; normal pulsation is, however, present throughout the foot. The temperature of the skin is raised during the attack. Elevation of the foot above the cardiac level lessens the symptoms and causes some diminution of the colour, but does not lead to any ischaemic pallor. Urticaria factitia has been described in some cases, but was not present in any of our four patients, nor did any of them show hyperidrosis.

Pathology

The cause of erythromelalgia is unknown. Weir Mitchell regarded it as a vasomotor neurosis. Buerger (1924) states that the sympathetic system is in all probability the seat of the disease, and this view receives some support from the immediate and complete cure which has in our hands followed lumbar cord ganglionectomy. It is also significant that in the recovery phase of a Raynaud attack, which is thought by most observers to be of sympathetic origin, the extremities involved are red and painful. Lewis (1933–4) regards the condition as a "susceptible state" in which the skin of certain patients reacts to a stimulus at a point well below the threshold of a normal individual. It is a common observation that some patients who experience trouble in the winter from erythrocyanosis or perniosis are apt to complain of sensitive burning feet in hot weather, but we have never seen this amount to anything more than a mild inconvenience. Collier (1898) thought that erythromelalgia was associated with nervous lesions, and considered that its presence might afford early indication of serious disease of the central nervous system. This view has, however, not been substantiated.

Differential Diagnosis

The condition which presents some superficial resemblance to erythromelalgia, and to which most of the confusion in the literature is due, is the painful rubor common to certain peripheral vascular diseases.

The Painful Rubor.—In cases of progressive obstruction of the peripheral arteries there comes a time when a reddish discoloration of the skin appears. This happens first in the digits and spreads later to the hand or foot. This rubor is of a dark brick-red colour, and is more evident in the dependent position. When the discoloured part is elevated above the level of the heart the rubor gives way to a cadaveric pallor, and the rapidity of the change in colour gives a direct measure of the degree of arterial obstruction. The earlier stages of rubor are not painful, but as the colour extends and deepens the pain begins. This pain, which is likely to become constant and severe, is a "rest pain," and is quite distinct from claudication, which is an "exertion pain." The rest pain is diminished by the dependent position, and these unfortunate patients try to gain sleep by hanging the limb over the side of the bed. Rest pain is no doubt due to tissue starvation, and it will disappear in dramatic fashion if a sympathectomy has been able to dilate a sufficient collateral supply. The condition of painful rubor is a grave one, and is to be regarded as a pre-gangrenous state.

There are many points of difference between painful rubor and the erythromelalgia of Weir Mitchell. Rubor is seen most commonly in young adult males (thromboangiitis obliterans) and in elderly men (arteriosclerosis). Pallor on elevation is not seen in erythromelalgia, and the pain in rubor is eased by the dependent position. Finally, the painful rubor is no more than a symptom of some grave underlying condition, which is always a threat to the limb and often to the life of the patient.

Treatment

Treatment has hitherto been purely symptomatic and of little avail. In view of the probability that the disease is due to some disorder of the sympathetic nervous system, it would appear to be justifiable to treat the severe intractable cases by section of the sympathetic chain.

Since 1936 we have treated three cases by lumbar cord ganglionectomy; the fourth patient was not so treated because of a background of thyrotoxicosis. The results in the three operated patients have been excellent: in each case the symptoms have completely disappeared and the patient has remained well. Short notes of the cases submitted to operation are as follows:

Case 1.—A woman aged 24, a machinist, had had hot and burning feet when she was a girl at school. The trouble steadily got worse and the attacks began to come on in the winter. In these attacks, which lasted from three to four weeks and had intervals of only a few days between them, she says the pain was very severe and the feet "felt on fire." She could not walk, and had spent the previous six months lying in bed with the bare feet in the open. She was a thin pale woman, much worn by pain and loss of sleep. Both feet were bright red in colour—not sweating, very tender, with prominent veins; arterial pulsation was present but not exaggerated. A left-sided lumbar cord ganglionectomy was performed in July, 1936. The unilateral operation was done in order that the unoperated limb might serve as a control. The result in the left foot was entirely satisfactory. After watching the case for a year, the operation was done on the right side with equally good results. The patient has been seen since on many occasions, and remains entirely free from her former symptoms.

Case 2.—A man aged 55, a clerk, began to suffer five years ago from a hot patch on the right heel. This quickly spread to the whole foot, and shortly involved the left one. He then complained of burning pain, which varied little in summer or winter. He was quite incapacitated by the pain and tried to obtain sleep by bathing the feet in cold water two or three times during the night. There was no evidence of any disturbance in the blood supply to the feet; all pulses were present, but the skin was red, dry, intensely tender, and felt hot. A bilateral lumbar cord ganglionectomy was done in February, 1940, after which the symptoms at once disappeared; the feet returned to normal and he is perfectly well.

Case 3.—A woman aged 26, a supervisor, complained of burning pain in the feet, made much worse by warmth. The condition was typical of erythromelalgia. She was kept under observation for twelve months, during which time she became worse. A bilateral cord ganglionectomy was done in July, 1940. The pain was at once abolished and the feet became normal. She was seen a few days ago, and remains quite free from her trouble.

Summary

An account of erythromelalgia is given and its diagnosis from painful rubor is discussed.

Treatment by sympathectomy is advised and records of three successful cases are given.

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J. G. Rushton, R. W. Cragg, and L. K. Stalker (*Arch. intern. Med.*, 1940, **66**, 531) give an account of a young woman who suffered from spontaneous attacks of hypoglycaemia. Operation failed to reveal the pancreatic tumour which was expected. The patient died after the operation, and necropsy showed extreme atrophy of the adrenal glands and "extensive inflammatory destruction of the thyroid of the type described by Hashimoto." No tumour of the pancreas was found, and the authors consider the hypoglycaemia to have been due to the adrenal changes.

REVERSED ROTATION OF THE INTESTINE ACCOMPANIED BY ENCAPSULATING PERITONITIS*

REPORT OF A CASE

BY

J. W. GEARY GRANT, F.R.C.S.

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The occurrence in the same patient of the above two conditions, which are decidedly rare and are liable to cause some embarrassment to the operator, appears to be worth recording.

Case Report

On May 5, 1939, assisted by Dr. R. Nelson of Treherbert, I operated on a patient of his, a miner aged 62. The history given was that two days previously he was seized with sudden abdominal pain followed by complete constipation. The abdomen was moderately distended. Nothing was felt per rectum, and the history was negative. Under general anaesthesia the abdomen was opened by a right paramedian incision. All that was at first seen was a large cyst with smooth shining white walls; it resembled an ovarian cyst, and occupied the greater part of the left hypochondrium, epigastrium, and left lumbar region (Fig. 1). The only portion

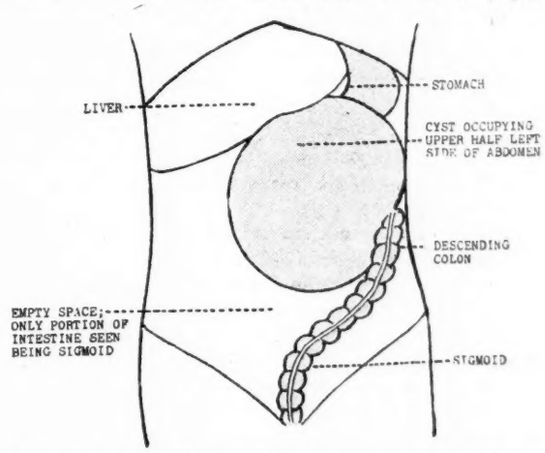

FIG. 1.—Diagram of condition found at first operation for acute intestinal obstruction.

of the intestines visible was the descending colon, which appeared to come out from under the cyst in the left hypochondrium. The rest of the abdomen being carefully walled off, a small incision was made in the cyst, and out of this a quantity of foul-smelling blood-stained fluid escaped. On enlarging the opening it was found to be occupied by the whole of the intestine from the duodenum to the left colon, which emerged in the left hypochondrium from the sac. The gut was entirely free from the inner wall of the sac, and no difficulty was experienced in cutting away the sac from its attachment to the posterior abdominal wall. There was then found to be a volvulus of the mid-gut loop, which had undergone rotation of about 270 degrees in a clockwise direction. This was undone. The distended caecum showed a gangrenous patch the size of a shilling a Paul's tube was fixed in this opening and the caecum was fixed in the abdominal wound, which was closed.

The abdominal wound healed after some suppuration, but a large opening in the caecum remained from which all the intestinal contents escaped. The man's condition having greatly improved, an attempt was made to close the caecostomy; this was immediately followed by symptoms of obstruction. It was then decided to reopen the abdomen. On August 2, the opening in the caecum being temporarily closed, the abdomen was opened under general anaesthesia. It was found that the caecum and ascending colon came out

* Abstract of a lecture given in the Welsh National School of Medicine.

through a tunnel under the root of the mesentery (Fig. 2). (It will be observed from the diagram that the colon is crossed by the superior mesenteric artery and the duodenum. The caecum has nearly reached its proper position, but has

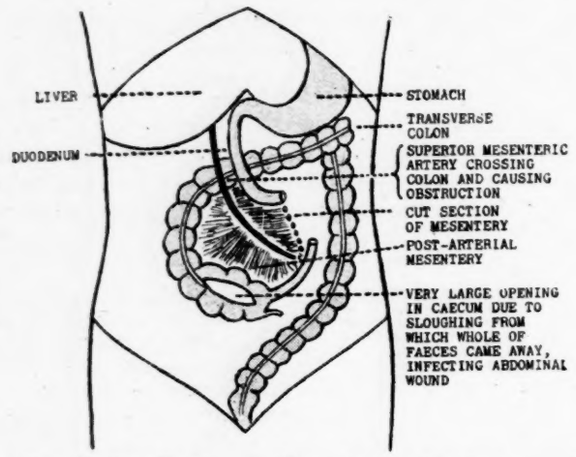
LIVER
DUODENUM
STOMACH
TRANSVERSE COLON
SUPERIOR MESENTERIC ARTERY CROSSING COLON AND CAUSING OBSTRUCTION
CUT SECTION OF MESENTERY
POST-ARTERIAL MESENTERY
VERY LARGE OPENING IN CAECUM DUE TO SLOUGHING FROM WHICH WHOLE OF FAECES CAME AWAY, INFECTING ABDOMINAL WOUND

FIG. 2.—Showing the condition of parts found at second operation. Note colon crossed by duodenum and superior mesenteric vessels. The pre-arterial mesentery has contracted its normal but limited adhesion to the posterior abdominal wall, thus forming a narrow tunnel through which the caecum and right colon pass, and is trapped. The caecum and post-arterial mesentery have not become adherent, but at first sight the intestines appear to be in their normal position—caecum on right, small intestines on left.

taken the wrong route to do so, passing behind the duodenum instead of in front. Neither the pre-arterial nor the post-arterial mesentery has contracted any adhesion to the posterior abdominal wall, and the whole of the mid-gut loop swings free and is liable to torsion, as occurred in this case.) The diagnosis was that of reversed rotation of the mid-gut loop, which from the condition seen at the first operation would appear to have been completely enclosed in a cyst-like structure, everywhere free except at its points of attachment in the neighbourhood of the duodeno-colic isthmus. As obstruction had taken place when an attempt was made to close the caecostomy it was decided to carry out a right hemicolectomy. The ileum was divided five or six inches from the ileo-caecal valve and, the proximal end being closed, was anastomosed to the sigmoid. The colon was divided at its emergence from the tunnel under the mesentery, the proximal end closed, and the caecum and ascending colon removed. The patient made an uninterrupted recovery, and five months later resumed his work as a collier. I am informed that he has been perfectly well since.

Discussion

Whilst non-rotation is not a very rare condition—I have myself reported two cases and have met with one or two others (Grant, 1928, 1930–1)—reversed rotation appears to be decidedly rare. Dott (1923–4) reported one and referred to a second. Donald (1927–8) describes one, and the illustration in his article shows exactly the same condition as that found at the second operation on my case.

With regard to the condition of cyst formation present in this case, a good description is given by Wilmoth and Patel (1931). They call it "la péritonite chronique encapsulante," and one of the illustrations to their article has an appearance similar to that of mine on opening the abdomen, although the contents were different. Their description is that of a membrane-like pigskin, smooth, white, and shining—a very good one. They refer to a case in which the operator, seeing what he thought was a cyst, attempted its total extirpation, and they remark, "On peut deviner ce qu'il en advint."

Most of the cases reported by Wilmoth and Patel, Devine (1932–3), Soupault (1940), and various German surgeons, under the title of Zuckergussdarm, Zuckergussleber, and Zuckergussmilz, and by other French authors as "intestin sucre glacé," describe a membrane more or less closely attached to intestine, liver, spleen, etc., as the case may be. I would like to stress that in the case I report there was no such attachment, the bowel in the sac being perfectly free. As Prof. Lambert Rogers remarked to me, one almost wonders whether the extra-embryonic coelom could possibly have been drawn in, forming a covering to the mid-gut loop.

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Clinical Memoranda

March Fracture

As medical officer of an infantry battalion I have had a high incidence of march fracture—namely, five cases in the past nine months. Before joining the Army I had not seen a case and had heard very little about this interesting condition. Textbooks tend to dismiss it in a few lines.

CASE REPORTS

Case 1.—An N.C.O. reported sick on November 5, 1939, complaining of pain in the left foot radiating up to the ankle when walking. On examination there was slight oedema of the dorsum of the foot and marked tenderness over the head of the second metatarsal. Abnormal movement and crepitus were elicited. A diagnosis of ? march fracture was made. *X*-ray examination showed the condition to be Freiberg's infraction of the head of the second metatarsal. An orthopaedic surgeon advised a metatarsal bar on the shoe. The condition improved considerably, and the man was able to walk about normally but could not proceed more than a mile without a rest. His occupation was changed to that of a clerk, and he was able to perform his full duties. About April 1 he was transferred to another unit and I have not seen him since.

Case 2.—A private reported sick on January 6, 1940, complaining of pain on walking and slight swelling of the dorsum of the right foot. There was extreme tenderness over the second metatarsal. An *x*-ray examination revealed a transverse crack of the second metatarsal with no displacement. The foot was immobilized in plaster-of-Paris for twenty-one days. The plaster was then removed and the patient instructed to walk about. One week later he was discharged to duty in employment as a clerk. He has had no further trouble with his foot.

Case 3.—This man reported sick on July 22, 1940, with pain in the right foot on marching and swelling of the dorsum of the foot. There was marked tenderness over the second metatarsal. A radiograph taken on July 23 revealed no bony injury or abnormality. His foot was rested for a week with no improvement. A further radiograph taken on August 2 showed a typical march fracture. The foot was immobilized in plaster-of-Paris for twenty-one days. On removal of the plaster the patient was instructed to walk around. He complained of pain on walking for a week or so afterwards and was very loath to put any weight on the foot. A ten-day course of foot exercises by the physical training instructor restored his confidence. He was discharged to duty on September 13 and has not complained since.

Case 4.—This man reported sick on August 20, 1940, with a complaint of pain in the left foot and slight swelling of the dorsum on walking. There was marked tenderness over the third metatarsal. A diagnosis of ? march fracture was made and the foot was radiographed. The *x*-ray film showed slight thickening of the shaft of the third metatarsal on the medial side but no evidence of a fracture. The foot was rested for ten days and another radiograph was taken. This time the film revealed a typical march fracture with a spindle-shaped

mass of callus. The foot was immobilized in plaster-of-Paris for twenty-one days. The patient still complains of slight pain and swelling of the foot, but this is gradually easing off, and he will probably be able to return to duty in a week or so.

Case 5.—This man reported sick on September 14, 1940, complaining of pain and swelling of the left foot. There was marked tenderness on pressure over the third metatarsal. *X*-ray examination revealed a march fracture. The foot was immobilized in plaster-of-Paris, which is now due for removal.

COMMENT

The following points were noted: (1) All five cases occurred in healthy young adults who before the war had been in civilian occupations not entailing long hours of standing. (2) It is thought that prolonged standing is probably of more importance than marching as a cause of march fracture. Two of the cases occurred during the winter, when not a great deal of marching is done. (3) The complete absence of a direct history of trauma. (4) Symptoms sometimes persist for some weeks after removal of the plaster-of-Paris, but then gradually subside. (5) *X*-ray examination does not at first always reveal the fracture, but re-examination ten days later discloses it, usually with some degree of callus formation.

A. A. WILLIAMS,
Lieutenant, R.A.M.C.

Spontaneous Pneumothorax during Pregnancy

Dyspnoea associated with pregnancy may be due to toxaemia or to cardiac or respiratory disease. Pregnancy complicated by a spontaneous pneumothorax is uncommon, and I think the following case is of interest because of the ease and rapidity with which all symptoms and signs disappeared.

CASE REPORT

The patient, a 3-para aged 24, came to the ante-natal clinic when she was seven months pregnant. She was a stout healthy-looking woman about 12 st. in weight. Her breathing was more rapid than usual, and on inquiry she stated that she was becoming very short of breath, especially on going upstairs, and when she breathed deeply she had a pain in her right side. She had had a cold three weeks previously, and a troublesome cough had persisted, but without sputum. She was not cyanosed, her blood pressure and urine were normal, and there was no history of any previous illness.

Examination of the chest revealed diminution of movement of the right side, where the percussion note was dull and the breath sounds were absent. There were no adventitious sounds, and no sign of cardiac displacement was observed. The respiratory murmur seemed normal on the left side. On inserting a needle in the pleural space at the right base a hissing sound was heard with the escape of air. A radiograph showed complete collapse of the right lung and, on the left side towards the base, some degree of mottling and linear shadows.

A week after her first visit the patient said she felt better. Air was then again aspirated with an ordinary 10 c.cm. syringe. Her cough improved within the next two months, and her weight was 12 st. 4 lb. at full term. The physical signs in the chest had disappeared, except at the right base, where the respiratory murmur was slightly weaker than at the left base. The patient was delivered in hospital, labour being spontaneous and normal. A radiograph taken about two months after the birth showed that the right lung had re-expanded.

It seems to me that the pneumothorax was due to rupture of a terminal air vesicle from excessive coughing. The shadow towards the left base having practically cleared would indicate that the shadows were due to catarrhal changes. However, the possibility of tuberculosis has also to be kept in mind, and the patient will be carefully watched. Meantime she is attending the child welfare centre and is very well.

Glasgow. GRACE MCLINTOCK, M.D., D.P.H.

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Reviews

FAMILY ALLOWANCES

The Case for Family Allowances. By Eleanor F. Rathbone, D.C.L., LL.D., M.P. "Penguin Special." (Pp. 118. 6d.) Middlesex: Penguin Books.

It may be well to state at once that the writer of this review is himself a convinced believer in the desirability of some form of children's allowances, and that he approached this book with the expectation—or, perhaps more accurately, having regard to experience of some previous pronouncements of its author, Miss Eleanor Rathbone, M.P., with the sincere hope—that he might find therein a succinct, well-ordered, popular, and effective statement of "The Case for Family Allowances" as promised by its title. This hope has unfortunately been almost completely disappointed. The first two chapters purport to set out the ethical case and the economic case against "the present method." It is not quite clear what the author regards this present method as being. It is obviously incorrect to describe it as an unmitigated and unqualified uniform wage system. To it, however, Miss Rathbone ascribes not only bad housing but almost every social evil and whatever is unsatisfactory in the family life of the poor. Her picture of this life is drawn as one of unrelieved gloom, but the great majority of the children of the poor and less well-to-do, and of their mothers, are not the squalid, unhappy, and hopeless creatures that she would have us imagine. Throughout these chapters one is conscious of exaggeration, of special pleading, of straining after points which, however good they may be in other directions, have no bearing on her particular thesis and have only a very indirect connexion with the subject. The relationship between size of family and poverty is relevant and is incidentally considered; but it is not simple nor necessarily one of cause and effect. Miss Rathbone mentions among other investigations the Bristol survey of 1937, and if one were seeking a contrast between muddled thinking and confused statement on the one hand and balanced judgment and clear pronouncement on the other, it is to be found in the pages of this book and in the report of the Bristol survey, which was the subject of a leading article in this *Journal* on April 22, 1939. In her brief consideration, too, of a diminishing population, it is extraordinary that she should be concerned with birth rate, death rate, and the father, instead of fertility rate and the mother.

In her third chapter the author deals with "the remedies." The value of this chapter is vitiated by the facts that she considers these separately and does not allow for those which have some real support being adopted and vigorously applied in combination; and that the arguments she uses against those of which she is contemptuous are often so illogical as to be ludicrous. She states that the control of prices "obviously" helps the well-to-do more than the poor because it enables the "wealthy housewife" to pay less for her meat and so "afford a dish of asparagus to follow it" (p. 52), oblivious of the considerations that, without it, the poor housewife would be able to purchase less, or none at all, of one or more of the controlled commodities, and that control of prices is accompanied by rationing on an equal scale for all alike. Further, in relation to social services, she says that public housing need not be considered because it affects only those who live in subsidized houses; and health and educational services are "clearly beside the point" because they only give the children bigger appetites and keep them longer from wage-earning (p. 47). These are not

unfair examples of the author's controversial method. There is a final chapter entitled "The Future," which summarizes briefly and somewhat less extravagantly these earlier portions of the book.

The only really important and valuable pages of the book are the intermediate ones, say from 56 to 99, in which, accepting family allowances as a solution—or, better, as one factor in the solution—Miss Rathbone discusses alternative methods of providing them, and recounts the history of the movement with a description of those instances in which they have been established in practice. This is helpful and up-to-date, though even in this part of the book the critical reader will not be without his opportunity for comment. The author herself refers to one of her previous publications as "a better book" than this, and it is easy to believe that it is so. The short, clear, popular, and convincing book setting forth the logical case for family allowances, and showing what can be done and has been done towards their establishment, has still to be written.

APPLIED PHYSIOLOGY

Applied Physiology. By Samson Wright, M.D., F.R.C.P. Seventh edition. Oxford Medical Publications. (Pp. 787. 25s. net.) London, New York, and Toronto: Oxford University Press. 1940.

Since growth is a characteristic of life it might be assumed that textbooks of physiology have intense vitality, for starting usually as comparatively slender volumes they rapidly attain gargantuan proportions. But such inflation is apt to bring its own nemesis, and the unwieldy volume is replaced in popular favour by one of a more manageable size. It is not surprising, therefore, that Prof. Samson Wright, in his preface to the seventh edition of his *Applied Physiology*, seems to regard its increased size with some anxiety mingled with natural pride at its successful career. As the mere list of the new or rewritten sections occupies more than a whole page, we can sympathize with the ambivalence of his feelings. He started out in 1926 with the laudable intention of meeting the needs of those who were destined to become medical men and not pure physiologists. He was naturally gratified when the Conference on the Curriculum re-echoed his views as to the importance of the human aspect of physiology in relation to its disturbance by disease. If the book is no longer strictly confined to applied physiology, but has really become one on physiology in general, who can blame him? The continually increasing demands made by examiners in the subject force the hands of teachers and authors alike. It is difficult to see the end of this tendency in medical education, for it must be admitted that all the well-meaning attempts to lighten the curriculum have failed. In the meantime Prof. Samson Wright's readers will continue to find this book a sound and extraordinarily comprehensive guide, which will prove a very present help in time of trouble in the examination room.

PRINCIPLES OF SURGERY

Synopsis of the Principles of Surgery. By Jacob K. Berman, A.B., M.D., F.A.C.S. (Pp. 615; 274 illustrations. 25s. net.) London: Henry Kimpton. 1940.

This book has been written with the laudable object of correlating the basic sciences with the fundamental principles of surgery. Few of its pages are without footnotes in small type, and for the most part these constitute the most interesting part of the text, at least for the practitioner of surgery if not for the undergraduate student. This is all to the good, however, as the book is primarily written for the student, and the body of the text constitutes the elements of surgery while the footnotes are speculative, sometimes in the nature of definitions of terms, sometimes historical, and occasionally philosophical. Thus a note on evaluating the efficacy of surgical treatment says, "Perhaps Nature can do more than the surgeon," and in an introductory chapter entitled "Historical Review" a quotation from Osler appears as a footnote: "The past is a good nurse, especially for the weanlings of the fold." Sometimes statements appear to be a little sweeping—for example, that gliomas are infiltrative and defy extirpation. While this is unfortunately true of many of these tumours, some, as is well known, can be completely and successfully extirpated. In the main, however, the text is accurate, well printed, very readable, and also well illustrated with photographs of patients, with *x*-ray and histological pictures, and with diagrams. The term "chop amputation" (p. 134) might perhaps be described as a colloquialism, but it is surely better than "guillotine amputation," to which we have become accustomed here. Halsted's name is spelt incorrectly on page 24, a very common error, and for the legend to Fig. 84 on page 236—namely, "Diagram illustrating pathologico-physiologic causes of neurogenic, haematogenic, cardiogenic, and toxaemic shock"—we can think of no better expression than one of those graphic Americanisms such as "some mouthful."

As a teacher of surgery the author, in producing this book, has done good service not only to his own pupils but to medical students everywhere. There are few books of like character which we have seen to compare with it as an introduction to surgery and a guide to the student entering on his work in the surgical wards. It is sound, very much to the point, full of common sense and much wise advice, and (what is perhaps best of all) stimulating enough to arouse further interest in matters which in a work of this size can be but touched upon.

FIRST LINES IN PHYSIOLOGICAL AND PATHOLOGICAL CHEMISTRY

Introduction to Physiological and Pathological Chemistry. With Special Reference to the Needs of Schools of Nursing. With Laboratory Experiments. By L. Earle Arnow, Ph.D. Introduction by Katharine J. Densford, R.N., M.A. (Pp. 556; illustrated. 17s. 6d. net.) London: Henry Kimpton. 1939.

The author is lecturer on physiological chemistry to the Minnesota School of Nursing, and his book is modelled upon his course of lectures. The director of the school in her introduction testifies that Dr. Arnow makes his subject both interesting and easy to understand, and the book amply bears that out. It sets itself a fairly formidable task in having to start at rock bottom with a definition of chemical substances, then proceed through introductory inorganic, physical, organic, and physiological chemistry, to lead up eventually to some of the very recent applications of the latter subject in the realm of clinical medicine As a whole the book is exceedingly well planned, and for those who have had the advantage of some previous school chemistry there ought to be no difficulty in following with complete understanding the progressive and orderly development of the subject-matter. Against the more academic background, wherever particular chemicals or reactions have application to everyday nursing or medicine, the author draws attention to such use, thereby stimulating the practical interest of the student.

The title on the cover bears the word "Illustrated," which is not without significance. Diagrams of formulae, apparatus, organs, and photographs of cases, especially those depicting the characteristic features of the various endocrine disorders, are numerous, chosen with discrimination, and reproduced with clarity. It is impossible, however, to concede that the author has been equally successful

with his course of practical exercises, which constitutes his last section. It is to be observed that there are departures in technique from the standard methods of blood analysis of such a character as would militate against satisfactory results. Moreover, no useful purpose is served by the inclusion of some of the tests, as, for example, that given for the oestrogenic hormones. An appendix dealing with methods for the removal of stains from fabrics, while it is not strictly a part of either physiological or pathological chemistry, is nevertheless of considerable interest and practical value to those for whom the book is specially written.

CONTRACEPTIVE METHODS

Practical Birth-Control Methods. By Norman E. Himes, Ph.D. English edition revised by Margaret Hadley Jackson, M.B., B.S., D.R.C.O.G. Introduction by Robert L. Dickinson, M.D. (Pp. 248. 7s. 6d. net.) London: George Allen and Unwin, Ltd.

Professor Norman Himes has compiled what is really a manual of contraceptive practice with a pleasant philosophical turn, comprehensive, clear, and readable. The masterly foreword by Havelock Ellis and Dr. Dickinson's graceful preface emphasize the value of such reliable information on "birth control, accepted by the public and demanded by the married, far in advance of the lag of the law or the ken of the doctor." The author's special interest in the history of contraception, "old as a social usage, new as a social movement," greatly enlivens the text. An effective quotation from a Roman Catholic statement, in beautiful English, of the advantages of using the "safe" period, enumerates the benefits claimed for wisely practised contraception by its whole-hearted supporters. Professor Himes, however, shows later that any infertile period must depend upon the individual's date of ovulation, which cannot yet be, in practice, ascertained; one misses, too, any reference to a cycle in the woman's desire. The suggestion that not all women are fitted for maternity appears once or twice.

A chapter on the anatomy and physiology of sex is provided for the intelligent layman, with line drawings. Then follow clear, detailed, and complete descriptions of contraceptive methods and appliances in descending order of value. This leads by way of sterility and sterilization to the related problems of abortion, which are factually dealt with and include very interesting accounts of the Russian experiment. An outline of birth control through the ages from 1550 B.C. merges into carefully tabulated information on modern clinics and their regulation within Britain and without. At the end is a glossary, but this needs revision —for example, "genes" is omitted.

Particularly good judgment has been shown in adapting this American book for English readers; the paper is light and unglazed. It is truly a useful manual on its subject, which is better designated "contraception" than "birth control."

Notes on Books

The masseuse in private practice often has to make herself useful in other ways than pure physiotherapy. When there is no visiting or resident nurse the doctor may call upon her to assist him by rendering various nursing services. In the stress of war a member of the Massage Corps may have to double the part of masseuse and nurse unexpectedly. *Bandaging and Simple Nursing Notes for Massage Students,* by EDITH M. PROSSER (London, Faber and Faber, 5s. net.), consists of concise notes on the essentials of nursing, with a fully illustrated section on bandages and splints, and should be useful to anyone who wants to learn all she can about nursing in a short time. It is small enough for an apron pocket; in fact, the price seems rather excessive for the size.

Whether syphilis occurred in early days or became endemic in Europe after the discovery of America at the end of the fifteenth century has long been a subject of discussion by medical historians. No conclusions will be reached until the relevant passages in the Old Testament have been examined by a doctor who is also expert in Hebrew, those in the Vedas by an Indian scholar, and the Chinese manuscripts by one who is competent to say what is genuine and what has been interpolated at a much later date. Dr. WHITWELL'S *Syphilis in Earlier Days* (H. K. Lewis, 5s.) is an interesting little volume, but as he does not seem to have any of these qualifications it contains nothing towards a settlement of the dispute.

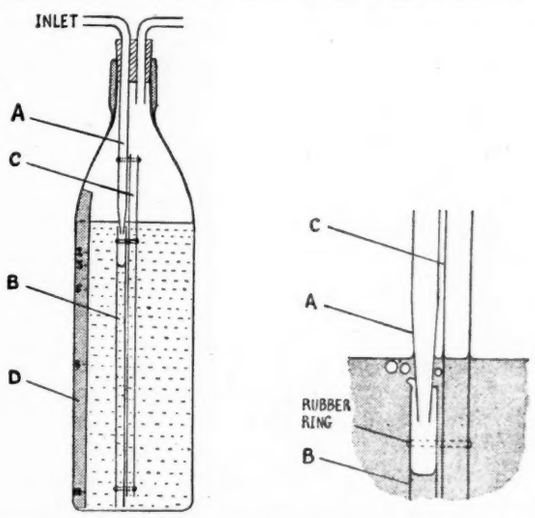
Preparations and Appliances

A READILY MADE FLOWMETER

Dr. H. F. BARNARD (Wolverhampton) writes:

Attention has been drawn to the use of oxygen in emergencies, in particular in cases of shock and of oedema of the lungs resulting from gas poisoning. It is essential that an adequate dosage be supplied to the patient; this can only be properly controlled by providing every patient on oxygen with a flowmeter. To meet this need it was felt desirable to design a flowmeter less expensive than those so far on the market, and quickly and easily made.

The flowmeter here shown is readily made from materials at hand in any laboratory: glass tubing, a ginger-beer or other



short-necked bottle about a foot in height, and a stopper. In this a jet of oxygen blows down on to the top of a column of water in a glass tube, thereby depressing the water level in this tube in proportion to the rate of flow. An inlet tube (A) is drawn to a jet of about 2.5 mm. bore so as to fit loosely into the top of another glass tube (B) of about 5 mm. bore; this latter acts as a manometer tube. For convenience in assembly these two are splinted together by a third tube (C) and rubber rings; these latter may be snipped from the end of a rubber tube. Water is run into the bottle so as to just cover the junction of the jet and manometer tube. Thus as the oxygen escapes back around the jet it is moistened. A strip of adhesive strapping (D) is stuck down the outside of the bottle and on this the flow in litres per minute is marked. For identification a small piece of strapping labelled "inlet" is attached to the upper end of the jet tube.

The apparatus may be calibrated against another flowmeter or by blowing for one minute into a B.M.R. apparatus, or by displacement of water from a Winchester quart bottle. The capacity of the Winchester having been ascertained it is filled with water and inverted in a bucket of water. From the time in seconds required by the oxygen to displace this known volume the rate of flow is calculated. If the optimum range of two to twelve litres per minute is not achieved, then either a wider manometer tube or jet of slightly greater bore should be substituted.

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THE LYMPHATIC SYSTEM IN HEALTH AND DISEASE

It is probably true to say that the average medical student completes his courses of anatomy and physiology with a very inadequate and even misleading conception of the role of lymphatic vessels in the body. This is no doubt partly due to the fact that he does not see much of this system for himself. On the other hand, he sees plenty of lymph nodes, and his ideas of the lymphatic system as a whole become dominated by these structures. Thus, while he may realize that the lymphatic vessels comprise a series of absorbent channels through which the tissue spaces of the body are drained, he comes to regard the lymphatic system in general as predominantly a protective apparatus, designed to arrest the spread of infections and the wide dispersal of malignant growths. There is reason to believe that such a conception is dangerously inaccurate. Rather more than ten years ago a distinguished anatomist was heard to remark that he would like to write an emphatic indictment of the lymphatic system because of the part which it seemed to play, not in the limitation but in the extension of disease. He had been impressed by observations on lymphatic capillaries in living tissues, which showed how easily their delicate endothelium became torn by extremely slight degrees of trauma, leaving open gaps which (unlike similar ruptures in the endothelium of blood capillaries) did not at once become sealed up by clotting and might take days to heal.[1] By these gaps an open communication is established with the tissue spaces, through which it is obviously possible for pathogenic and toxic agents to gain direct entry to lymphatic channels and to be carried over extensive areas. To-day this warning of the dangerous propensities of the lymphatic system requires urgent consideration because of its bearing on the treatment of infected wounds.

One of the most remarkable innovations in the surgical treatment of infected wounds is the closed-plaster method. Anyone who has had practical experience of this method will be ready to support this statement. Apart from the fact that in most cases (if applied intelligently) it leads to remarkably good results, the method relieves the patient of much pain and discomfort; it makes for ease and rapidity of transport of wounded men; it simplifies the task of the medical personnel; and it conduces to a considerable economy in the use of dressings and other material. It is well known that the development of the closed-plaster method resulted directly from the work of the surgeons of the Republican Army during the Spanish Civil War, and undoubtedly the chief credit is due to Prof. Trueta of the University of Barcelona. In a recent communication to this *Journal* Trueta and Barnes[2] have discussed the rationale of the method, and they lay special emphasis on its immediate effect in restricting the lymph flow from the affected part. They point out that any measure which will reduce the amount of lymph flowing through an infected limb must at the same time decrease the chances of absorption of bacteria and their toxic products, and in this way localize the infection.

The consideration which is thus given to the lymphatic system in the treatment of septic wounds raises anew the question of the function of lymphatic vessels in healthy and diseased tissues. It is well established that lymphatic capillaries certainly provide an absorbent system for the tissue spaces, and they appear to be concerned mainly with the absorption of extravascular protein and non-diffusible substances such as the blood capillaries are unable to cope with. Particulate material introduced into the tissues can be seen by direct observation in the living animal to be taken up by the lymphatic endothelium and so transferred to the lymph stream. But the term "lymph stream" is not altogether apt, for it seems that the flow of lymph in the lymphatic vessels is of a very intermittent nature. For one thing, it is stated by Drinker[3] that in normal tissues very little free fluid exists to be drained away, and in a completely immobilized limb the lymph drainage is reduced to negligible proportions. On the other hand, since the work of Starling almost fifty years ago,[4] many experimental observations have shown that movement and massage, as well as general physiological activity, greatly accelerate the flow of lymph. It might be expected, therefore, that the enhanced metabolism of the tissues in an inflammatory area, which is associated with an increased permeability of the blood capillaries and a local oedema, would necessarily impose a still greater responsibility on the drainage functions of the lymphatic capillaries. Indeed, it might reasonably be presumed that the healing process would be facilitated if means were taken to promote the lymph flow rather than to retard it. It has in fact been shown by Pullinger and Florey[5] that in acute inflammation the lymphatic capillaries actually undergo quite a marked proliferation, apparently to favour the rapid removal of inflammatory debris and also to deal with the increased exchange of fluid which occurs in injured and healing tissues. It is also the case that in local oedema the lymphatic vessels undergo a passive dilatation which further promotes the drainage of the abnormal fluid in the tissues. However, the implications of these morphological changes must be considered in the light of the direct observations of Drinker[3] on the lymph flow from oedematous tissues. Drinker's experimental studies on animals have led him to the conclusion that oedema by itself does not necessarily result in an increased lymph flow unless there is at the same time a rapid and marked increase in tissue fluid pressure, and in ordinary congestive oedema this does not occur. If the oedematous part is immobilized, then the tissue fluid apparently accumulates until the tissue pressure balances the filtration pressure of the blood capillaries. In these circumstances it seems that

[1] *Amer. J. Anat.*, 1933, **52**, 273.

[2] *British Medical Journal*, 1940, **2**, 46.
[3] *Amer. Heart J.*, 1939, **18**, 389.
[4] *J. Physiol.*, 1894, **16**, 224.
[5] *Brit. J. exp. Path.*, 1935, **16**, 49.

water and crystalloids may be absorbed directly by the blood capillaries, and in a short space of time the loss of protein from the capillaries is very slight. On the other hand, the relative impermeability of blood capillary endothelium to particulate material would prevent the absorption of pathogenic micro-organisms by this route. Probably this is one of the main factors which encourage the localization of an infective process when the lymph flow through a limb is retarded by a method such as the closed-plaster technique. But there must be presumably other factors also, for it is hardly to be supposed that the lymphatic drainage can be entirely arrested with impunity. Of these other factors three may be suggested. In the first place, the original observations of E. R. and E. L. Clark[1] on the fragility of lymphatic capillary endothelium deserve serious consideration. These observations suggest that the manipulations required in daily dressings, as well as the movements (however slight) which must occur in a limb which is not completely immobilized, would inevitably lead to the frequent rupture of the delicate lymphatic capillaries which are to be found in inflammatory tissues. Thus, the direct entrance into lymphatic vessels of pathogenic material is unwittingly effected by the very efforts which the surgeon makes to limit its spread. Another point is that, if the lymph flow can be retarded to the minimum compatible with adequate drainage of the tissue spaces, then even if the lymph does contain infective material this can be effectively dealt with by the endothelial phagocytes of the lymph nodes through which the lymph must pass on its way towards the thoracic duct. In this way, of course, the lymphatic system certainly plays a protective part, but it is important to recognize that this is secondary to its drainage functions. Lastly, it is to be noted that the peripheral capillary plexus of the lymphatic system forms a continuous meshwork devoid of valves, through which pathogenic material may possibly spread locally on all sides from the site of an initial infection. Obviously the danger of extension by this route will be minimized if the affected part can be completely immobilized.

It has been pointed out above that there can be no question of preventing the spread of infection by stopping the lymph flow entirely. In a resting limb it may not be possible to collect lymph by cannulation of a lymphatic vessel, and the flow may therefore appear to be "negligible." But this does not mean that the flow has altogether ceased. Clinical observation has indeed suggested that the complete interruption of the lymph flow from a limb leads ultimately to pathological changes, of which the condition of elephantiasis is the best-known example. The first experiments made to reproduce this condition in animals, however, proved unsuccessful, for the severance of the main lymphatic vessels of a limb was followed by a transient oedema only. It was soon shown, however, that the absence of any permanent effect of lymphatic obstruction in these cases was simply due to the rapidity with which regeneration of lymphatic vessels takes place. It has been demonstrated by a number of anatomists, and particularly by E. R. and E. L. Clark[1] in America and J. H. Gray[6] in this country, that lymphatic vessels which have been cut or transplanted have an astonishing capacity for sending out sprouts through which new connexions are established with neighbouring vessels. The reproduction in animals of a condition resembling elephantiasis has now been achieved by Drinker[7] by the repeated injection in the neighbourhood of main lymphatic trunks of crystalline silica with 2.5% quinine hydrochloride. This leads to a permanent obstruction of the vessels as the result of excessive fibrosis of the tissues, and the result is shown peripherally in a fibrous overgrowth and a thickening of the skin. Incidentally, it was found that the tissues so involved showed an increased susceptibility to streptococcal infections.

[6] *J. Anat.*, Lond., 1940, **74**, 309.

THE VESICO-VAGINAL FISTULA

No gynaecological instrument is more familiar than Sims's speculum. Yet the remarkable story behind this apparently simple retractor is little known, nor is it generally appreciated that this instrument, first formed from a bent pewter spoon, enabled J. Marion Sims, then an obscure country doctor, to develop and perfect a method of treatment by which vesico-vaginal fistula could be cured with almost invariable success and a reproach to the profession thus be removed. This work more than any other led to the recognition of gynaecology as a medical specialty. An account of Marion Sims and his investigations is given in this issue by Professor Chassar Moir. The vivid descriptions left by Sims in the partly finished autobiography and other papers are pieced together and make a fascinating story. To many, however, the more important practical question will arise: How far are Sims's methods in the treatment of vesico-vaginal fistulae of use to-day? Moir believes—and supports his belief with illustrative cases—that the technique developed by Sims still has an important place in gynaecology.

Vesico-vaginal fistula is now a comparatively rare condition, and few surgeons have a wide experience of dealing with it. An adequate description of Sims's technique, with details of the essential pre- and post-operative treatment, is not easily available. Moreover, many of the fistulae are to-day the result of injury from the operation of total hysterectomy—a type of case especially difficult to cure by any operation. For these various reasons the older techniques tend to be neglected and recourse is had to the newer methods and routes of approach which have become possible since the days of Sims and Emmet. One such method is to open the bladder suprapubically and to expose the fistula from above. This has the advantage that it provides an easy exit for urine while the suture area is healing, but unfortunately one set of technical difficulties is exchanged for another that may be equally formidable, and the method is by no means uniformly successful in effecting a cure. The fistula may also be approached through the peritoneal cavity, and such operations have from time to time successfully cured intractable cases. The method, however, is not devoid of danger, for the separation of extensive adhesions deep in the pelvis and the dividing of the dense scar tissue necessary to display

[7] *Bull. N.Y. Acad. Med.*, 1938, **14**, 231.

the fistulous opening between bladder and vagina may result in damage to one or both ureters, with fatal peritonitis as a sequel.

Still other methods have been used in an attempt to restore bladder function. Even before Sims's day patients had been treated by an operation planned to close the vaginal orifice and thus transform the vagina into an appendage of the bladder. Unfortunately, this procedure has invariably resulted in a heavy urinary infection and the formation of calculi in the new cul-de-sac. A much modified but somewhat similar technique was employed in at least one case by Sims and again in recent years by Sir Ewan Maclean[1]: a fistulous opening high in the vagina was deliberately closed round the posterior lip of the cervix uteri, so that the uterus emptied its secretions into the bladder. This has apparently given satisfactory results, and the repeated menstrual flow has had no other disturbing effect than to cause some temporary frequency of micturition. In this issue an interesting modification of the above procedure is described by Mr. J. B. Macalpine. His patient had sustained a bladder injury during an operation for total hysterectomy, and a large fistula situated high in the vagina had resulted. Operating by the transvesical route, Macalpine exposed the fistula and dissected free a cuff of vagina just below the level of that opening. The lower edges of the cuff were closed, thus providing a new vault for the vagina. The upper cut edges of the vagina were then united, and the bladder now communicated with a small blind compartment of vaginal vault. Complete success resulted from this operation, and a later cystoscopic examination showed that the walls of the small sacculation were indistinguishable from healthy vesical mucosa.

Full consideration must be given to every surgical measure capable of curing vesico-vaginal fistulae; the variations in the nature of the injury are such that no one type of operation can possibly give uniformly satisfactory results. Nevertheless there is little doubt that the simple, direct, and safe methods of Sims and Emmet have been put on the shelf for too long. It has been said that few can now handle their tools with the skill of their designers. But this is no reason why an operative technique that used to yield such consistent results should now pass into oblivion; rather is it an indication that more intensive development of such work should be undertaken in special institutions. Macalpine speaks of the vesico-vaginal fistula as a peculiarly "distressing and unsocial condition"; this is an apt description, and the injury is doubly distressing for the reason that the sufferer is so often in the prime of life and in other ways a healthy woman. For these reasons no effort should be spared to help these patients back to a normal existence.

[1] *J. Obstet. Gynaecol.*, 1913, **24**, 274.

A SHELTER DICTATOR WANTED

Although the recommendations of Lord Horder's Committee on Health in the Shelters, which were summarized in a recent leading article, have been endorsed by the Government, this is far from saying that they have been carried into effect. Government in this country is largely delegated to local authorities, and in matters which must necessarily be adjusted to the circumstances of different areas Whitehall can only prescribe and leave those on the spot to administer. In London, where the shelter problem is most acute, the conditions of local government, with twenty-nine boroughs and large county boroughs and urban districts on the outskirts, are most complicated. We present this week a survey of conditions in representative shelters in Central London and elsewhere, and also in Tube railway stations, with a view to showing how far the Horder recommendations have been implemented. Certain signs of activity are visible to every Tube traveller, such as a store of electric wash boilers and other sanitary equipment at the stations, and the running of a "Tube refreshment special" equipped by the Lord Mayor's Fund. The London County Council is providing, at a cost of £40,000, bunks in the shelters on its housing estates. Other improvements are visible in the largest shelters, but those not so large, although holding hundreds, are neglected. In a north-western suburb for which an Outer London local authority is responsible there is a trench shelter for 300 people in which not one of the Horder recommendations has been carried into effect. The only "amenities" so far installed are said to be three sanitary buckets behind a curtain. At one London Tube station which is on the fringe of three boroughs the provision of medical aid supplies seems to have fallen between three stools, and such supplies as are available are the result of voluntary effort. One newspaper reports several cases of diphtheria as having occurred at one Tube station, and at others there are stories of outbreaks of colds and laryngitis.

The Government warmly repudiates any charge of complacency. The Minister of Health states that it is not true that he and the Minister of Home Security have merely issued circulars to local authorities and washed their hands of the matter. Officers of the Ministries keep in close touch with local medical officers of health, visiting the shelters regularly day and night and giving all assistance possible. One of these inspectors is associated with each three or four boroughs. At least fifty medical aid posts have been officially established in shelters in the metropolitan area, and others are on the way. It is no easy matter to arrange quickly for doctors to be attached to large public shelters, especially at a time when many of them have other civil defence commitments, but hundreds are already on call for shelter work in London.

No doubt much has been done, but much time has also been lost, and those who have first-hand acquaintance with East End shelters remain extremely dissatisfied. The following statement in a leading article in the *Times* of November 26 shows how deep is the offence against those who have suffered most from air bombardment. "Named shelters, notably in the East End of London, suffer from named defects and are the scenes of named scandals. They are consistently and vilely overcrowded. They lack in some cases all sanitary provision, and, where such provision exists in primitive form, it lacks all privacy. They lack any reasonable degree of lighting. They leak. They have mud floors. Some of the people using them are ill or disabled and some of them are physically

offensive. In these conditions of stench, filth, vermin, and darkness hundreds of people pass the greater part of their lives. The effect on the minds, as well as the bodies, of children and young people needs no elaboration. And these conditions in these particular shelters have continued practically without improvement—sometimes even with gradual deterioration—for ten weeks." The acute and menacing character of the problem calls for extreme measures. It is intolerable that its solution should be frustrated by petty questions of local government and areal boundaries, which are certainly not respected by enemy raiders. A shelter dictator for the whole of the metropolitan area seems to be called for, with authority over every aspect of the shelter problem, including construction, hygiene, and the provision of the social amenities. There has been far too much passing on of responsibility from one body or from one official to another. As Lord Horder has said, these conditions are "still profoundly disturbing."

SIR HENRY DALE, P.R.S.

The medical profession will receive with warm satisfaction the news that Sir Henry Dale has been elected President of the Royal Society in succession to Sir William Bragg. It was only last year that his old college, Trinity College, Cambridge, elected him an Honorary Fellow. As a student Dale was a scholar of Trinity, and obtained a first class in the Natural Sciences Tripos in 1897. He completed his medical education at St. Bartholomew's Hospital, and later went to University College, London, as Sharpey Scholar. He was director of the Wellcome Physiological Research Laboratories from 1904 to 1914. In 1914 he was appointed to the staff of the Medical Research Committee as head of the Department of Biochemistry and Pharmacology, which was housed during the war in the Lister Institute, and moved to Hampstead in 1920. In 1928 he was appointed director of the National Institute for Medical Research, which position he still occupies. He was elected one of the secretaries of the Royal Society in 1925, and in 1936 shared the Nobel Prize with Prof. Otto Loewi for his brilliant work on the chemical transmission of the effects of nerve impulses.

T. R. Elliott had suggested that sympathetic impulses liberated at the endings of sympathetic nerves either adrenaline or an adrenaline-like substance, and W. E. Dixon deduced a similar mechanism for parasympathetic nerves. Dale's first step towards the solution of this problem was taken when in 1914 he investigated the actions of acetylcholine, but it was not until 1929 that this substance could be isolated from an animal organ, in work with Dudley, in large enough quantities to be identified chemically. Observations made meanwhile by Loewi on the frog's heart, and further researches by Dale with other collaborators, finally led to the identification of acetylcholine as the substance liberated at parasympathetic endings, and at the endings of preganglionic fibres in autonomic ganglia. Later research showed that acetylcholine was also liberated at the endings of voluntary motor nerves. An etymological by-product of this work was the introduction by Dale of the convenient words "cholinergic" and "adrenergic," to describe the nerve fibres of the autonomic system in terms of chemical function. Another major contribution by Dale to medical research was the work he did in collaboration with Barger and with Laidlaw on the active principles of ergot. Ergotoxine was isolated, but there was some doubt whether the therapeutic action of ergot extracts could be attributed to this alkaloid alone. Medical practitioners had for long been satisfied with the results of using the watery extract of ergot, and Dale tried to get direct evidence on the point by organizing a clinical comparison between watery extracts and alcoholic extracts made from the same ergot. The former contained none and the latter practically all of the alkaloids of the ergotoxine group. The problem was finally solved when Chassar Moir found that the watery ergot extract had, indeed, a powerful stimulant action on the puerperal human uterus, and (in collaboration with the late H. W. Dudley) the active substance was at last identified as the alkaloid ergometrine. In his earlier observations Dale had found that, in addition to ergotoxine, ergot extracts contained tyramine and histamine. From this developed his researches on the action of histamine and its analogy with surgical shock, carried out during the last war, and on anaphylaxis and histamine. During the last war Dale also conducted researches with Dobell on the pharmacology of the alkaloids of ipecacuanha in the treatment of amoebic dysentery.

Since 1663 there have been forty-four Presidents of the Royal Society, and Sir Henry Dale is the eighth medical man to fill this distinguished office. His life has been spent in the service of experimental medicine, and it is a remarkable fact that his major researches in the laboratory have subsequently found important application in clinical medicine. Few men have done so much to train and direct the work of chemists in the fields of biochemistry and medicine. As he himself pointed out at a meeting of the British Association in 1936, the whole orientation of therapeutics has shifted from the effects to the causes of disease, and the increasing domination of biological and medical research by chemical methods and ideas is the greatest of all the services of chemistry to the community. Sir Henry Dale's great efforts in furthering this domination have now been fittingly recognized.

LIVER FUNCTION TESTS

What is the best test of liver function? The results of three recent mass attacks on this perennial problem may be of interest to readers in view of the care and thoroughness displayed by each team of workers. This type of research appears to be one which is easier to conduct in the United States than in this country, for it would be difficult to find a similarly exhaustive study in a British journal. White, Deutsch, and Maddock[1] performed six types of test, in many cases repeatedly, on sixty-six patients with hepatic disease. They concluded that the hippuric acid test was the most generally sensitive, although the cholesterol ester determination was of some value in acute cases. The bromsulphalein test, which was necessarily performed after surgical relief of jaundice, closely paralleled the hippuric acid excretion. The absence of urobilinogen was considered a good demonstration of complete biliary obstruction, but its changes in partial obstruction were less clear. The blood phospholipid esti-

[1] *Amer. J. digest. Dis.*, 1940, 7, 3.

mation was of little value. Finkelstein, Lipschutz, and Hill[2] used six tests on seventy-two patients. These included the Weltmann reaction, which appears to be similar in principle to the Takata Ara reaction; calcium chloride is used in place of the mercuric chloride in the latter. They found the albumin–globulin ratio normal except with very gross damage, but the cholesterol esters were usually raised in toxic jaundice, and the hippuric acid test gave similar results. They apparently retain some faith in the powers of the van den Bergh reaction to distinguish toxic from obstructive jaundice, but this claim is poorly supported by their results. The Weltmann reaction proved in their hands to be the most sensitive index of early liver damage. Shay and Fieman[3] also rely upon a combination of five tests, which they recommend should be frequently repeated—preferably three times a week. Their opinions of the van den Bergh reaction and the cholesterol ester ratio are similar to those noted above, but they also use the serum phosphatase estimation and the (urinary) galactose test, the latter being the one which they prefer to any other. The ordinary glucose-tolerance test was also done, because a flat type of curve frequently occurs in obstructive jaundice. It will be noted that each group of investigators express their final preferences for a different test, and it is difficult to resist the conclusion that this result is achieved rather by differences of interpretation than by any intrinsic superiority in the chosen method. Of the few recent studies on liver function in this country, two have been concerned with the galactose test. Maclagan[4] has introduced an improved modification of this in which the blood galactose, in place of the total blood sugar, is estimated after oral administration of galactose, and this appears to give good results in distinguishing toxic from obstructive jaundice. Maclagan and Rundle[5] have used this test to demonstrate in hyperthyroidism a considerable impairment of galactose tolerance which appears to have diagnostic possibilities. McArdle[6] has found that the serum cholinesterase is lowered in hepatic disease, and although the reason for this is at present unknown it may be useful in diagnosis. The hippuric acid test has found some application in the study of mental disease, a lively controversy having arisen over an attempt to incriminate the liver in catatonia. The verdict at present appears to be an open one, with Quastel and Wales[7] and Davies and Hughes[8] appearing for the prosecution and Strömolsen, Greville, and Lennon[9] for the defence.

BLOOD PHOSPHORUS AND JUVENILE RHEUMATISM

The question of a pre-rheumatic state in young children has been hotly debated. A vague state of chronic fatigue and undernutrition has been described as commonly preceding the onset of acute rheumatic fever. N. Epstein and F. C. McDonald of Boston throw some interesting light on the problem and point to a possible explanation of the pre-rheumatic state in a recent study[10] of the level of the blood phosphorus in rheumatic fever. A close study of the state of malnutrition, which they assert was common among patients hospitalized for rheumatic fever, suggested that one of the essential elements found to be deficient in the children's diets was phosphorus. Analyses were therefore made of the blood of thirty-eight patients, the inorganic phosphorus and the total phosphorus of the serum being studied as well as the phosphorus in the alcohol-and-ether-soluble and acid-soluble fractions of whole blood. The total phosphorus content of the whole blood was also determined. The results in rheumatic children were compared with those in larger groups of non-rheumatic controls. In whole blood as well as in the acid fraction the highest values obtained in the rheumatic series were invariably lower than the minimal values in the control group. The depletion of phosphorus was most marked in the organic fraction. The average reduction of phosphorus in the whole blood of the patients with rheumatic fever as compared with the controls was 15%, and there was a smaller reduction of about 10% in the available serum phosphorus. It is, of course, possible that these departures from normal might be the result of rheumatic fever instead of having anything to do with its causation, but Epstein and McDonald do not support this view. Careful histories satisfied them that their rheumatic patients had frequently been taking diets relatively poor, among other things, in minerals. The chronic fatigue, also prevalent as a precursor of the acute rheumatic episodes, leading to many symptoms involving muscular tissue, suggested to the Boston workers the possibility of disturbances of the metabolism of muscle tissue. This they link up with their studies of blood phosphorus, for present-day knowledge of the chemical reactions which occur during muscular contraction and recovery suggests that phosphorus compounds are essential for normal activity. The anaemia which accompanies acute rheumatic fever has been thought of as a factor in the reduction of total blood phosphorus of the whole blood, but investigation of control children anaemic for other reasons seemed to eliminate this possible source of fallacy. There may be other fallacies in the highly speculative theories put forward, but meanwhile the central fact of a reduction in the blood-phosphorus levels in acute rheumatic fever remains for further investigation and explanation.

EFFECT OF CHRONIC DISEASE ON A CHILD'S MIND

In addition to obvious physical effects, chronic disease in the growing child might be thought to interfere with intellectual development and with emotional life. These important considerations do not always receive the attention they should from parents, physicians, and research workers. McGavin, Schultz, Peden, and Bowen[1] have made a very careful study of forty-nine children suffering from diabetes mellitus. Of these, twenty-three had become diabetic before the age of 7 years, the remainder between 7 and 15. The results of measurements of height and weight are presented in a not very illuminating series of graphs instead of in tabular form. One gathers that as a group the children fell somewhat below the average, but only one child could be classified as a real dwarf. This 16-year-old boy had had diabetes for eleven years. Following treatment with pituitary growth hormone, thyroid, and testosterone propionate he gained one and three-quarter inches in four months and two and three-quarter inches in a year. It is not certain, however, that the gain was not due simply to an improved diet. In average intelligence and in variability of intelligence the group did not differ from the general population, and the authors do not subscribe to the view, which has been advanced, that diabetic children tend to be above average intelligence. The main interest of this study, however, lies in the results of the personality tests, and particularly of the psychiatric examination. It was found that if the disease develops early in life there is far more likelihood of satisfactory emotional adjustment. If the child is under 7 the disease tends to be accepted as part of the growing-up process, and the only undesirable reaction noted was the use of the illness for "blackmailing" the parents. A later onset, however, is associated in the majority of cases with feelings of rebellion and inadequacy. For example, nine of the children

[1] *New Engl. J. Med.*, 1940, **223**, 119.

[2] *Rev. Gastroenterol.*, 1940, **7**, 351.
[3] *Amer. J. digest. Dis.*, 1939, **5**, 597.
[4] *Quart. J. Med.*, 1940, **9**, 151.
[5] Ibid., 215.
[6] Ibid., 107.
[7] *Lancet*, 1940, **1**, 402.
[8] Ibid., 403.
[9] Ibid., 1938, **2**, 995.
[10] *New Engl. J. Med.*, 1940, **222**, 943.

expressed feelings of shame, thinking that other children avoided them, or interpreted the diabetes in terms of guilt and punishment, or resented the interference with a normal life. In addition to withdrawal from social contacts as a result of this conflict, compensatory aggressiveness and boastfulness were found in some cases. Sometimes it was associated anomalies—for example, small size—which were the immediate precipitating factors. The attitude of the parents was not always satisfactory. In one case the child said that her mother loved her less since she had developed diabetes; it was in fact found that the mother was unconsciously rejecting her child and compensating for her own feelings of guilt by constant worrying and over-anxiety about her daughter's welfare. In this case psychotherapy applied to both mother and child yielded good results. Following Shepherd Dawson,[2] and in the light of other work also, there is no reason to believe that chronic illness in childhood, unless it affects the nervous system—and by no means always even then—has any ill effect upon intellectual capacity as measured by intelligence tests. Of course, the child may be deprived of its proper quota of schooling, but this consequence is obvious enough, as are the purely physical problems involved. The necessary emotional adjustments, however, tend to receive less consideration than they should. Studies such as that of McGavin and her associates perform a useful service in directing attention to so important a subject.

IDIOPATHIC RIGHT VENTRICULAR HYPERTROPHY

Primary hypertrophy of the right ventricle is not often met with except in mitral stenosis and congenital heart disease. It is generally accepted that it may arise as a result of severe and long-standing disease of the lungs, when pulmonary fibrosis with obliterative changes in the vessels and emphysema are thought to increase pulmonary blood pressure and thus increase the load on the right heart. Ayerza, at the beginning of this century, referred to such cases as "cardiacos negros," or "black cardiacs," because of their intense cyanosis. Later, the term "Ayerza's syndrome" was applied to the combination of long-standing pulmonary disease with great hypertrophy of the right heart, the symptoms being cyanosis, polycythaemia, dyspnoea, and cough. Ayerza's pupils believed that there was syphilitic sclerosis of the lung and pulmonary arteries in many cases, but although there are reports of such lesions in the lungs, the part played by syphilitic infection is still not clear. More recent observations indicate that considerable hypertrophy of the right ventricle may occur in the absence of these lesions and of any other obvious cause. Navasquez, Forbes, and Holling[3] describe three cases, with post-mortem reports, in which there was great right ventricular hypertrophy but without any cardiac or lung disease to account for it. The main clinical features were dyspnoea, cyanosis, cough, and oedema of the feet. At necropsy the right ventricle was found to be hypertrophied but not the left, the ratio of their weights being about 0.8 instead of the normal of about 1.8. Microscopically, changes in the pulmonary blood vessels were slight; there was intimal atheroma but not intimal thickening, which, by analogy with arterial hypertension, might have been expected had increased pressure existed in the pulmonary circulation. Although it is admitted that differences in the anatomical structure of the pulmonary and systemic arteries might explain the lack of muscular changes in the presence of hypertension, the authors reject the diagnosis of pulmonary hypertension in their cases, and prefer the term "idiopathic right ventricular hypertrophy." East describes three similar cases,[4] all in young women, and here again changes in the pulmonary arteries were slight or absent. Nevertheless he regards idiopathic pulmonary hypertension as a possible cause of the condition. Whether or not this is proved to be the correct explanation, it is clear that such cases open up a new field in cardiology in which further work will be awaited with interest.

[2] *Intelligence and Disease.* Med. Res. Coun. Spec. Rep. Ser. No. 162. London, 1931.
[3] *Brit. Heart J.*, 1940, **2**, 177.

ENCEPHALITIS IN THE U.S.S.R.

Mr. H. G. Wells in his latest tract for the times, *All Aboard for Ararat*, fears not so much another flood as a second Tower of Babel, for, if one may judge from past history, it is to the Tower of Babel that many of our major and minor political ills are due. One of these minor ills is exemplified by the fact that it has taken some years for any precise details to reach the outside world of the human encephalitis which is widespread in the U.S.S.R. According to Chumakov and Seitlenok,[5] who have now given a short account of the disease in English, with references to many publications in Russian, a form of encephalitis characterized especially by paralysis and atrophy of the muscles of the arms, shoulders, and neck has been known in the far east of Siberia for some time. In 1938 it was shown that the disease is caused by a virus which is readily transmissible to mice by intracerebral injection. The virus can be cultivated both in Carrel flasks in a serum Tyrode medium and in the developing chick embryo. The Russian workers have been able to show that the virus is transmitted by the tick *Ixodes persulcatus*, and they have therefore called the disease "tick-borne human encephalitis," a somewhat unfortunate name since louping-ill is also transmitted by a tick, *Ixodes ricinus*, and though primarily a disease of sheep and horses it also attacks man. While louping-ill, however, is confined to certain hill pastures, the Russian encephalitis is found only in woods and forests where *Ixodes persulcatus* lives on small rodents such as squirrels and hares. The human victims are therefore chiefly woodcutters, hunters, and other persons whose livelihood is gained in forest regions. Another difference from louping-ill is that the Russian virus is transmitted hereditarily by ticks. Histologically the changes produced by the Russian virus are said to be not unlike those found in Japanese Type B and St. Louis encephalitis, but there is no antigenic relationship. The presence of immune bodies in the serum of those who have recovered shows that the disease exists not only in Siberia but throughout European Russia right up to the Polish frontier. These findings satisfactorily explain a number of outbreaks that have been variously described as "atypical poliomyelitis," "serous meningitis," "post-grippe encephalitis," and by other similar terms.

Sir Henry Dale has been elected President of the Royal Society in succession to Sir William Bragg. Other office-holders are: Treasurer, Mr. T. R. Merton. Secretaries, Prof. A. V. Hill and Prof. A. C. G. Egerton. Foreign Secretary, Sir Henry Tizard. Other Members of Council, Prof. P. M. S. Blackett, Prof. F. T. Brooks, Dr. C. G. Darwin, Dr. A. N. Drury, Dr. H. J. Gough, Prof. J. B. S. Haldane, Prof. I. M. Heilbron, Prof. O. T. Jones, Prof. R. T. Leiper, Sir Thomas Middleton, Prof. L. J. Mordell, Dr. C. F. A. Pantin, Prof. H. S. Raper, Prof. E. K. Rideal, Dr. F. J. W. Roughton, and Prof. A. M. Tyndall.

Lieut.-Colonel G. S. Parkinson, D.S.O., R.A.M.C. (ret.) has been appointed acting dean of the London School of Hygiene and Tropical Medicine (University of London) and acting director of the Department of Public Health.

[4] *Brit. Heart J.*, 1940, **2**, 189.
[5] *Science*, 1940, **92**, 263.

THE SURGERY AT No. 3 GENERAL HOSPITAL

AN ANAESTHETIST'S VIEWPOINT

BY

REX BINNING, T/Major R.A.M.C.

Anaesthetist, No. 3 General Hospital

No. 3 General Hospital was the first and I believe the only general hospital in France that was entirely a tented one. The whole hospital, including the operating theatre and only excluding the pathology department, was under canvas.

The operating theatre tent was a marquee hospital, extending pattern. It consisted of three sections and two ends. There was an anaesthetic tent and sisters' duty room combined at one end of the theatre and a sterilizing room at the other. At first the floor of the theatre was merely a tarpaulin placed on the ground. This was very uneven, and it was impossible to wheel tables and anaesthetic apparatus about. It was also very cold to stand upon. This floor was superseded by a boarded one. This was better, but the heat of the theatre soon warped the unseasoned wood, and large cracks appeared that allowed the wheels of the tables to fall between them and dust to gather underneath. It would be well if all wheels for theatre equipment for use in the field were at least eight inches in diameter. This would permit them being moved even over rough floors. The last floor was a concrete and cement one covered with rubber linoleum stuck to the cement. This was perfectly satisfactory.

Heating and Lighting

The heating of the theatre was a major problem. We experienced one of the most severe winters known in Northern France for some years. As an instance of this there were actually ice floes in the tidal part of the harbour at Dieppe, while the inner basin was covered with ice several inches thick. It cannot be said that we solved the problem of heating to our satisfaction. There were three coal stoves in the theatre, and these were supplemented by Valor Perfection stoves. To begin with we had the Canadian type of coal stove. These were not satisfactory, as it was impossible to rake them out without filling the theatre with dust. The Canadian type was superseded by the "dumpy" type. These stoves were shaped like two bee skeps fitted together, one inverted and the other not. They were an improvement, but required a lot of attention, and they also could not be raked out while operations were in progress. At the beginning of a list they would be red-hot, and then after an hour they would have spent themselves and the temperature in the theatre would fall from 80° to 50° F. very quickly.

The hospital extending marquee had a double roof and single walls. With single walls the lighting in the theatre was such that certain operations could be performed without artificial illumination. As the weather became colder it became necessary to put on double walls in order to maintain the theatre temperature. This made the theatre so dark that artificial lighting was always required. The lighting was at first by acetylene. We were not very successful with this, mainly owing to flakes of carbon forming on the burners that were inclined to fall down on to the field of operation. I understand that better results were obtained in the last war, and if necessity had compelled us to gain more experience our results might have been better. The electric light was soon in operation. The light over the tables consisted of six 60-watt bulbs arranged round the circumference of a board fifteen inches in diameter. The power was provided by a petrol engine that drove a dynamo. There were no accumulators. This lighting proved very satisfactory.

Operative Arrangements

The theatre was laid out with two operating tables at each end of the tent, and there was room for another in the middle in the event of a severe rush of work. Before operation most patients were transferred to one of two operation wards. These wards had fewer beds and extra nursing staff, and were under the direct charge of the surgeons concerned. This greatly simplified the post-operative care of one's patients, and was an altogether admirable arrangement. Patients for operation had to be taken to the theatre over sixty yards of rough ground, sometimes while snow or rain was falling, but operations were postponed when the conditions were particularly severe. Operations other than minor ones were also put off on windy days. It was found by exposing agar plates that the number of organisms in the theatre air rose considerably on windy days.

To mitigate the effects of the dust, Lieut.-Colonel Ogier Ward and Lieut.-Colonel Hayes devised a kind of bird-cage made of Cramer wire splinting, which was erected on the instrument table. This was covered with sterile towels and effectively prevented dust from falling on to the instruments. At first that conservative but indispensable body the nursing staff was inclined to scoff at this innovation, but it proved its worth, and at the end of a list an examination of the sterile towel on top showed the dust that would have fallen on to the table. A similar device is used by Mr. Hugh Cairns, and the principle might well prove of value for routine operations even in the most modern theatre.

From the first the commanding officer and the consulting surgeon decided that under the existing conditions we were not justified in operating on knee-joints or in undertaking any major abdominal surgery except in an emergency. The absence of serious post-operative complications undoubtedly justified this policy.

It will be seen that to a great extent we were the victims of circumstance, but in spite of this up to the beginning of May, 1940, over 600 operations were done. After that time casualties began to arrive in steadily increasing numbers, and my records of the last three weeks until the hospital was evacuated on May 20 are not complete. The operations were mainly for hernias, haemorrhoids, ear, nose, and throat conditions, and hallux valgus; cystoscopies were also performed. One brain abscess was successfully drained and a small number of acute abdominal emergencies were undertaken. Until May 1 operations for hernia numbered 95, of which 55 were performed under pentothal and N_2O and O_2 and 40 under spinal anaesthesia.

In December and January we had a certain number of post-operative chest complications. These were all of the same type. The patients ran a temperature of 99° to 100° for three or four days, with cough, some muco-purulent sputum, but no definite physical signs. None of these cases were serious and all cleared up. The incidence in this small series was confined to the operations for hernia, and was slightly greater in the cases operated under spinal analgesia than in those done under pentothal and N_2O and O_2. It is interesting that slight post-operative pulmonary complications were common in many of the hospitals in France during the winter, but later they almost disappeared. It is impossible to assess the causes accurately, as so many factors were improved as time went on.

In general the anaesthetists were responsible for the arrangement of operating lists, for ordering the premedication, and for ensuring that patients were brought to the theatre and taken back to the wards to time. I borrowed an idea from Prof. Macintosh of Oxford: all patients who came to the theatre had a label attached to them on which were written their name, their ward, the nature of the operation, and the method of premedication and the time it was given. Before the patient returned to the ward the anaesthetist wrote on the back of the label the type of anaesthetic that had been given, for the guidance of the sister in charge. This system was a great help in organizing the flow of cases and in seeing that they were returned to the right wards. It was particularly useful when more than one table was in use.

The Anaesthetic Technique

The routine premedication was omnopon 1/3 grain and scopolamine 1/150 grain. This was given one to one and a half hours before operation. At first omnopon was not available and morphine 1/4 grain and atropine 1/150 grain was employed. It was noticeable that the sedation was far more marked when omnopon and scopolamine was used. This was due to the absence of the stimulating effect of atropine, which to some extent nullifies the action of the morphine. When a rapid effect was required the omnopon and scopolamine was given intravenously. This procedure was of great assistance in

emergencies, and it is surprising that it is not more commonly adopted.

In most cases it was found preferable to induce the patient in the theatre, as the passage between the anaesthetic room and the theatre was low and narrow. But for the difficulty of heating, it might have been better for the theatre and anaesthetic room to be in one tent, divided by screens. In most cases induction was effected by 0.5 gramme of pentothal, followed by N_2O and O_2. For all operations except tonsillectomies this was all that was given. Ether was avoided, not so much because of the open fires, but because it was felt that the good post-operative condition of the patients justified their occasional slightly suboxygenated appearance during the operation. As the time of operation wore on it was striking how much the oxygen percentage could be increased. When convoys of battle casualties began to arrive one observed the truth of Cannon's work in the war of 1914–18. These men had sometimes been forty-eight hours or more coming by ambulance train from the C.C.S. They were very tired as well as suffering from the effects of their injuries, and it was noticeable that a much higher proportion of oxygen, sometimes as high as 30%, was required in anaesthetizing them with nitrous oxide and oxygen.

Some authorities have advocated continuous pentothal as the ideal anaesthetic for the field. From the foregoing it will be seen that I am not prejudiced against intravenous anaesthesia, but I am certain that its widespread use for the shocked, or what Wesley Bourne calls the "handicapped," patient will show an unfavourable mortality rate compared with that following anaesthesia with nitrous oxide or cyclopropane.

The tonsillectomies had the nose and throat cocainized and a dental prop inserted in the mouth before induction with pentothal. The insertion of a prop was important, as otherwise the patient had to be carried to an unnecessarily deep plane of anaesthesia simply to relax the jaw sufficiently for the insertion of the Boyle-Davis gag. After 0.5 gramme of pentothal 100% N_2O was given, a Magill's tube was passed, and the throat packed off with gauze soaked in olive oil. Anaesthesia was then continued with N_2O and O_2. In some cases this sufficed, but in most the patient was inclined to gag as the effect of the pentothal wore off. A small quantity of chloroform was added to prevent this.

The drugs available for spinal analgesia were 1 in 1,500 percaine and 5% stovaine. Light percaine was used for the hernias and laparotomies that were performed under spinal analgesia. The Etherington-Wilson technique was usually employed. All the haemorrhoids and some of the cystoscopies were anaesthetized with 5% stovaine. For these operations, what Maxson called the "sitting bull" method was employed. The patient was sat up and 1 c.cm. of stovaine given, the patient being kept sitting for three minutes. This method is admirably suited to these operations. It was observed that the "Army back" was an easy one on which to perform spinal puncture. The lateral approach was tried, and eventually became the method of choice. This is favoured more in the United States than here. By avoiding the tough intraspinous ligament one is less liable to bend a fine needle, and it eliminates the need for a Sise introducer.

The Trendelenburg operations for varicose veins were all done under local anaesthesia. One brachial plexus block was performed following Patrick's technique, and was quite successful, but the scope for this method seems very limited.

Conclusion

Only a few days before the hospital was evacuated we moved into the new hutted theatre. This was not finished, but we were compelled to take this step owing to the difficulty of "blacking out" a tented theatre while working at night with adequate lighting. Even in its unfinished state this theatre was a great improvement on the tent, and served to throw into relief the disabilities under which we had worked for the previous six months. However, I hope I have shown that what one might call medium surgery is possible in a tented theatre without any sacrifice of professional standards. Unfortunately we were only to enjoy the new theatre for a few days before evacuation was ordered. It was most depressing to leave the hospital which one had watched grow from the time when there was nothing but a bare and exposed field and in which one had worked through a long and severe winter; but we left much richer in experience than when we arrived in the middle of September, 1939.

I must thank my commanding officer, Colonel A. L. Foster, for reading the proofs and for his permission to publish this paper.

ECONOMY IN THE USE OF DRUGS FOR SKIN DISEASES

The Therapeutic Requirements Committee of the Medical Research Council has carried a step further its examination of the economies that can be made at the present time in the use of drugs, and has classified those employed in dermatological practice. The classification is identical with that of the previous memorandum, which was discussed in these columns on October 12 (p. 499), namely:

A. Drugs which are either readily available at present or regarded as essential.

B. Drugs which are essential for certain purposes but the use of which should be restricted.

C. Drugs which are not essential and do not justify importation or manufacture in wartime.

The following are the drugs included in categories B and C, together with the committee's notes:

Drug	Category	Remarks
Acid boric	B	Saline compresses may be used instead of boric fomentations, and for dusting powders it may be replaced by talc, zinc oxide, magnesium trisilicate, or kaolin
Adeps benz. ..	B	Under Government control. See Note 1 below
Alumin. acetas ..	B	Lead acetate is often interchangeable
Amylum	B	Under Government control. Substitute saline compresses for starch poultices, and for powders see remarks to boric acid
Borax	B	Reserve for ung. aquos. The glycerin and the honey of borax may be replaced by watery solutions of aniline dyes in the treatment of thrush
Chrysarobin ..	B	Substitute dioxyanthranol
Glycerin	B	Substitutes are under investigation
Hydrarg. ammon..	B	See Notes 2 and 3 below
Hydrarg. perchlor.	B	Substitute an antiseptic of the chlorinated phenol type
Iodum	B	See Notes 2 and 3 below. Substitute proflavin, acriflavin, trinitrophenol, crystal violet, brilliant green
Magnes. sulph. ..	B	Substitute sodium sulphate
Ol. amygdalae ..	C	All vegetable oils and fats are under Government control. Arachis and other vegetable oils may be used if available. See Note 1 below
Ol. olivae	B	
Ol. sesame	B	
Paraffin liq. ..	B	Under Government control
Paraffin. molle ..	B	See Note 1 below
Potass. sulphurata..	C	Substitute sulphur ointment or liq. calcis sulphurata
Zinci aleostearas ..	B	

The following are the notes referred to in the table which were attached to the memorandum:

1. *Ointments.*—For many of the purposes for which ointments are often prescribed pastes and creams are more satisfactory and require only about half the amount of fatty basis. In certain circumstances fatty vehicles can be replaced by wet dressings, either with or without mucilage to increase the viscosity, antiseptic paints and varnishes, or powders.

2. *Antiseptics.*—Boric acid and iodine need not be used in dermatology. The amount of mercury used could be greatly reduced, and it need only be available for trial in cases in which alternative antiseptics have not proved satisfactory. If the antiseptics for local application to the skin were limited to aniline dyes, coal-tar derivatives, salicylic acid, sulphur, ichthammol, resorcin, dioxyanthranol, silver nitrate, and tar, the treatment of few skin diseases would suffer greatly as a result. Tar in the form of crude gasworks tar is an efficient and cheap preparation.

3. *Ringworm.*—Mercurials and iodine are rarely required for the treatment of ringworm, whereas a paint containing fuchsin and Whitfield's ointment of benzoic and salicylic acid are effective remedies which are freely available.

4. *Scabies.*—Should epidemics of scabies occur, treatment will be most economically carried out if put under the control

of individuals who have special knowledge of the treatment of skin diseases. A large number of chemical substances will destroy the acarus, and all local treatments depend largely on the efficiency of application. Sulphur ointment still remains one of the most efficacious remedies, and the frequency of sulphur dermatitis has been overstated. If supplies of benzyl benzoate are short this substance would be best reserved for treatment of children.

5. *Pediculosis.*—For body lice a thorough bath and a change of clothing usually suffice. Oily dressings are not essential for pediculosis of the body and scalp. Head lice can be killed by soaking the hair in phenol lotion (1 in 40) for about an hour, and the nits can then be removed by a fine comb after the application of vinegar or dilute acetic acid. Oily applications are of some value in pediculosis pubis, and an ointment of 5% β-naphthol may be applied after shaving the affected area.

HEALTH IN THE PUBLIC SHELTERS

A LONDON SURVEY

The truth about the shelter problem in London is hard to discover simply because it admits of no brief summary. When critics describe shelters in which the conditions are "ghastly" they can give chapter and verse for their allegations, and when apologists claim that as a result of two months' work an ordered administration has arisen, that bunks and sanitary equipment have been installed, and that medical supervision and supplies have been provided, they also can point to examples. The diversity of conditions in London shelters from the point of view of both health and safety is a reflection of the diversity of London local government, where, in the county alone, thirty local authorities rule over a hundred square miles. These authorities interpret their responsibilities variously, and the work also suffers by division between different departments.

A representative of this *Journal* has lately investigated shelter conditions in Central London and areas of the metropolis immediately adjacent, visiting representative shelters with a view to seeing how far the recommendations of the Horder Committee have been implemented. Trench shelters, surface shelters—the familiar brick and concrete erections—private basement shelters under factories, shelters under old houses, Tube shelters, and shelters in railway tunnels and under arches have all been visited. The East End of London and the dock area are not included in this description, the conditions there being so dissimilar from those obtaining elsewhere in London as to require separate treatment.

The "key" factors in the provision and running of shelters are the borough authorities and the shelter marshals. On the extent to which these carry out their duties depend the adequacy and comfort of the shelters. All the shelter marshals interviewed appeared to be public-spirited men and women, anxious to do everything possible for the people in their charge. Not quite the same can be said of some borough authorities, which are less alive than they should be, but most of them are doing their utmost to improve the conditions, and that there has been improvement during the last two months cannot be doubted.

A West End Borough

In a West End borough whose population includes the well-to-do and the very poor three types of shelter were visited. Here the official in charge of a surface shelter said that whatever he asked of his borough council was given eventually. For example, as the weather deteriorated the shelter was found to be extremely damp, and on his suggestion coke ovens and fans were installed to provide warmth and ventilation as well as the necessary drying out of the concrete. In the same borough a trench shelter was seen in which the narrow trench was lined on each side with slatted seats, the backs of which can be lifted down to form a bed, still leaving a narrow gangway. Every shelter in this borough has a first-aid post with two or more trained nurses on duty all night and a panel of doctors within call.

In North London

In a working-class borough in North London a Tube shelter, a surface shelter, and two shelters under factories were visited. Here again it was evident that the excellence of the arrangements was due largely to the shelter marshals, and in the case of the Tube shelter to the station staff. In the Tube station tickets for places were issued, and a list of numbers and names was kept in the foreman's office so that the position of any shelterer was known. A canteen was being fitted, the expense being met out of the Lord Mayor's Fund. Other stations are being served by a "canteen train" equipped from the same source. First aid was provided by volunteer Red Cross workers.

A surface shelter in the same borough was found to have been fitted with bunks, but was not in use because the place was streaming with condensation water and the smell of damp was almost overpowering. Two shelters under factories (one of them belonging to British Drug Houses Ltd. and fitted with an admirable first-aid room and canteen) were visited; they were warm and dry, but there were no bunks, although a supply was expected.

The Central Area

In the central area there is good shelter accommodation for twice the number of people customarily using it. An excellent private shelter which has been lent to the local authority (after provision has been made for the firm's staff) has central heating all day, and although this is turned off at night the place is warm and dry. Another very large shelter is under one of the central markets. Here an energetic marshal has introduced film shows, concerts, and religious services, which are held in one of the bays. A canteen is to be installed, and in the meantime shelterers are allowed to use small primus stoves.

An interesting visit was paid to one of the Tube tunnel shelters accommodating three thousand people. The Salvation Army is responsible for the canteen here, and on an average night supplies from 90 to 120 gallons of tea and cuts up one hundredweight of cake, with a further half hundredweight in the early morning before the people go to work. In this shelter there is at present one first-aid clinic, with nurse and Red Cross men on duty every night, and another clinic is being fitted on the station platform.

Suggestions

Generally speaking, conditions in the shelters are improving. This is the general opinion of the authorities, the marshals, and, so far as it could be elicited, of the shelterers themselves. At the same time much remains to be done. Tardiness is not always due to non-cooperative authorities, but often to shortage of labour and difficulty in obtaining supplies. The authorities are planning not for this winter but for the duration of the war, for it is realized that after the experience of the last three months the people, many of whom have been bombed out of their homes and have no other home but the shelter, will use the shelters as dormitories until the war is over.

There is a great difference between running a big shelter holding some thousands of people and a small shelter containing perhaps 150. The latter does not need elaborate arrangements for canteens; needs may be met by the provision of a couple of electric points with kettles or a gas ring, a point for the wireless, and, to meet cases of illness, the presence of a nurse and a doctor at call. It would be of psychological value if the walls of shelters could be colour-washed—whitewash mixed with yellow ochre would meet the case inexpensively. The dark brick and concrete walls absorb the light and are not pleasant to the eye.

On a superficial glance the health of the shelterers appeared good. In one or two of the shelters coughing was mentioned as troublesome. But even in the largest shelter visited the average attendance at the clinic was not more than fifteen or twenty. Doctors and nurses go round the shelters at least once a night, sometimes twice, and the police and shelter marshals are always observant. The first-aid posts at the Tube stations, generally in the passage-ways, sometimes on the platform itself, are now in evidence as the hour for sheltering begins.

A problem which is exercising the minds of medical officers of health and marshals is the state of the bedding. Some of it is left in the shelters all day; one shelter has a baggage room fitted up with a large airing cupboard, but in other cases the bedding is piled on seats or bunks so that the floor may be free for cleaning. In many instances it is rolled into a bundle in the morning and left until night. The question of lavatory accommodation, particularly in underground shelters, is of course most difficult, but in many of the shelters visited the best possible arrangements in the circumstances had been made, and the Tube authorities are co-operating to improve the situation further. Some authorities have already installed chemical sanitation, and others are doing so. There is urgent need of facilities for washing and bathing, either near to the people's workplaces, to which they go direct from the shelter, or near to the shelter itself.

The proportion of children in the shelters varies with the locality. In the eastern part of the central area children were fewer than in the western. But almost everywhere the appearance of the children, with their pale faces, heavy eyes, and obvious excitability and nervousness, pointed the case for the compulsory evacuation of children from London. The general demeanour of the adult shelterers is one of quiet cheerfulness. Some even find compensations in their condition. One case was mentioned of a woman who had suffered from spinal trouble for years and had had to wear a steel support; she claimed that she had been cured as a result of having to sleep on the hard wooden seats provided in the shelter!

The investigator gratefully appreciates the co-operation shown by medical officers of health and their departments, and the courtesy and interest of the marshals, wardens, and others interviewed.

Local News

AUSTRALIA

[FROM OUR CORRESPONDENT]

The Supply of Practitioners in Australia

Sir James Barrett, a former Chancellor of the University of Melbourne, and President of the British Medical Association when it met in Australia in 1935, has contributed an interesting article to the *Australian Quarterly* on the supply of medical practitioners in Australia and the refugee problem. Melbourne, the first of the Australian medical schools to be established (1863), instituted a five-year curriculum, half the time being devoted to biology and the basic sciences and half to clinical work. No such course existed in England until thirty years later. Since then the curriculum at Melbourne and at the other three schools has been lengthened to six years, but the "half-time" division remains, and to this arrangement Sir James Barrett attributes the great record of the Australian medical profession. Queensland has now gone further and made it compulsory for a graduate to do one year's work in an approved hospital as a resident medical officer before he can pass into practice. The number of practitioners varies from 1 in 1,200 of the population in Victoria to 1 in 1,700 in Tasmania. While the cities are well provided, there is an acute shortage in many country districts. In New South Wales the complaints of country dwellers became so vigorous that an Act was passed giving authority to register approved alien doctors for certain country regions provided that if they left the districts they were removed from the *Register*. The Government proposes to pay a subsidy to fifteen areas in New South Wales affording a guarantee of £1,000 a year for practitioners who undertake this work, and it is understood that if suitable Australian graduates are available they will be appointed. Queensland is considering similar steps.

The Refugee Problem

A certain small number of practitioners exiled from Germany have entered Australia, as other parts of the British Empire, but they are not generally entitled to registration. The only country outside the Empire with which Australia has had reciprocity is Italy. The Universities of Sydney, Adelaide, and Queensland admit approved alien graduates to their examinations at the end of the third year, after which they may take a three-year course of study and examination and then receive a certificate entitling them to registration. Melbourne, however, only releases them from one year's study, and requires a five-year course, which is tantamount to total rejection. "Some of us hope," says Sir James Barrett, "that Melbourne will fall into line with other universities." He considers it unlikely that alien graduates will take up practice in Australia in large numbers; many of them are specialists, and nearly all have been city people in their country of origin, while what is wanted in Australia is a sound general practitioner with good surgical knowledge. No matter what regulations for admission to practice may be made in the States, the real control over alien immigration is in the hands of the Commonwealth Government. Once aliens are admitted, the right to practise, if they happen to be medical practitioners, is decided by the various State Governments, and the policy varies widely from State to State. In New South Wales practitioners must have done a five-year course in some country with which reciprocity exists—that is, the British Dominions (except Canada, with which reciprocity was terminated some years ago) and Italy. Other alien practitioners may be requested, as already mentioned, to do the last three-year course of the University of Sydney. In Victoria, Italian medical practitioners can be (or could be) admitted to registration, but other alien practitioners undergo five years' training at the University of Melbourne. In other States the registrable conditions vary.

The Department of the Interior states that during the eighteen months ending December 31, 1939, authority was given for the admission of ninety-one alien doctors or dentists into Australia. Of this number sixty-one were Germans or Czechs and six were Italians. It is the rule, before authorizing any such admission, to warn the applicant that he may not be able to practise in Australia, and in many cases the applicants have stated that it was their intention to engage in other work, such as that of a manufacturing chemist or a farmer. But the shortage of practitioners in the country areas of Australia continues. It may be remedied by State subsidy or by the employment of aliens. It may also solve itself, but this is considered unlikely, for practitioners are not easily attracted to these regions, and meanwhile the country population, while not increasing in the same ratio as that of the cities, is not declining.

R. B. Frank (*Thèse de Paris*, 1940, No. 258), who records fourteen cases in patients aged from 34 to 56, states that haemorrhage from varicose veins in the oesophagus is a very rare form of haematemesis and an unusual occurrence in cirrhosis, but is perhaps less uncommon than is usually supposed. The cause of the venous dilatation is undoubtedly hypertension in the portal vein accompanied by endophlebitis. In half the cases the haemorrhage is very profuse, takes place at short intervals, and may be fatal. In the other half it is slighter and shows more or less prolonged remissions. It may occur in hypertrophic or atrophic cirrhosis, but as a rule it is found in latent forms without ascites. The prognosis is grave and treatment is disappointing.

Reports of Societies

FACIAL BONE STRUCTURE IN RELATION TO FRACTURE

At a meeting of the Section of Odontology of the Royal Society of Medicine on November 25, with Mr. EVELYN SPRAWSON in the chair, a paper was given by Mr. WARWICK JAMES and Mr. B. W. FICKLING on the relation of fracture of bone to tooth sockets and on the arrangement and structure of the bones of the face and their influence upon injury.

The character of bone, said Mr. James, was generally described as either compact or cancellous; but bone of both these kinds presented identical features under the microscope, and the difference lay in the interstices, which in the one case were small and in the other large. Dense compact bone obviously offered greater resistance to force and was less readily fractured than bone which was spongy in character. But elasticity played a part, so that the ratio of the incidence of fracture in each type would show variations not proportional to size.

In examining a large number of radiographs of fractures of bones of the face it was astonishing to find how rarely the fracture passed through a tooth socket; save in some readily explained cases the fracture always passed round the socket. The cylindrical socket of dense bone supported by the root of the tooth and having a soft elastic bed intervening with fibres passing into the bone and the tooth provided a highly resistant unit. The weakness was below and between such units, where the large intertrabecular spaces occurred. There were certain conditions in which fracture took place through the tooth socket. This was when the blow was directed immediately upon the teeth and adjacent bone, the former being dislocated or broken and the latter fractured, or when the socket was incomplete or the tooth unerupted.

Facial Bones

The facial bones were rigidly attached to the cranium, with the exception of the mandible, the only movable bone in the skull. They might be regarded as suspended from the cranium by the processes of bone surrounding the orbits. These processes were of dense bone so arranged that the vertical pressure on mastication was strongly opposed, but they had little resistance to forces applied in other directions, so that horizontal blows produced fractures through the orbits. The body of the maxilla was weakest through the antral walls. Fractures might pass from behind forwards along the arch of the palate, also through the infra-orbital canal and the floor of the orbit, with loss of sensation in the cheek, usually from lateral stress. The distribution of facial bone might appear to be feeble, but it was remarkable how the dense bone and the curvatures were arranged for dissipating the force and protecting the cranium.

Many years ago Le Fort carried out experiments on the cadaver in which blows of several types were directed at various parts of the face and the resulting injuries determined by careful dissection. Le Fort, who expressed himself surprised at the degree of violence required to produce fracture, defined three lines of weakness traversing the facial bones: (1) fracture dividing the maxilla above the alveolar process, traversing the wall of the nose and the canine fossa, and passing beneath the zygomatic bone to the pterygo-maxillary fissure; (2) fracture at a higher level through the upper part of the nose and below the zygomatic bones, starting at the nasal bones or just below them and crossing the nasal process of the maxilla and the inner wall of the floor of the orbit, to the region of the infra-orbital canal; (3) fracture completely separating the face from the cranium, crossing the nasal bones and the nasal process of the maxilla, with the upper part of the inner wall of the orbit, opening the ethmoidal cells to the neighbourhood of the optic foramen, and reaching the back of the spheno-maxillary fissure. Here the fracture line bifurcated, the front arm crossing the outer walls of the orbit to separate the zygomatic from the frontal bone, while the posterior arm separated the pterygoid processes near their base.

In conclusion Mr. Warwick James emphasized certain clinical points. As a fracture so rarely passed through the tooth socket extraction was contraindicated, for it was likely to promote further injury and favour infection by the breakdown of blood clot and collection of debris in the space created. In addition firmer fixation of the mandible was assisted by retention of teeth. With regard to the upper part of the face, a knowledge of the probable lines of fracture emphasized the caution which should be exercised and indicated the stresses which should be avoided in treatment. A number of these fractures passed unrecognized, for they were poorly revealed in radiographs, and clinically there might be little more than slight pain and tenderness.

The PRESIDENT said that the statement was made in the literature published in the early nineteenth century that horizontal fractures were caused by the use of the tooth key. One was not likely to see many of these nowadays. Did Mr. James find these fractures frequent, and how were they caused? Would he always recommend the saving of the teeth which were near but not in the line of fracture?

Dr. E. W. FISH said that in his clinical experience he had not found vestiges of bone on the line of the tooth root. The importance of removing the tooth was in direct ratio to the ability of the tooth root to form a pocket of infection. On no occasion could he say that he had seen teeth left with complete success; there had been a massive area of infection in the immediate vicinity of the tooth where bone had not formed. Mr. E. D. D. DAVIS thought a distinction should be drawn between a fracture due to blows and one due to a missile. The missile produced a comminuted fracture and the blow did not. A blow on the face in the malar region might cause fracture from the intra-orbital margin across the thin wall of the antrum to near the malar ridge, and both sides might be involved. This was serious because there would probably be a leakage of cerebrospinal fluid from the nose. Mr. G. DE RYNCK said that in every case of the kind that he had seen in war wounds the fracture line ran through the socket of the tooth and when the tooth was removed not a particle of bone was found attached to it. The fractures of which he had experience had in all cases save one been caused by missiles. Sometimes the tooth came away intact.

Mr. WARWICK JAMES, in replying, said that extreme force was needed to produce a horizontal fracture. The thing to determine was why the fracture occurred on a horizontal plane, and he came to the conclusion that it was because of the large trabecular space. The question of saving the tooth depended on the possibility of absolute fixation; if the tooth was removed liability to infection was increased, especially in the mandible. Quite a considerable gap would produce new bone, and infection would be diminished if fixation was achieved. Mr. de Rynck had spoken of fracture going through the socket. If the injury was directly to the tooth or alveolar margin the tooth might be knocked out, and he had excluded those cases from his survey because they formed a group by themselves. Mr. B. W. FICKLING said that with regard to the extraction of teeth, the point was that the tooth was left to start with and it could be removed later if necessary. He added that Le Fort's classification was very valuable because it covered all maxillary fractures. Mr. FRANK COLEMAN mentioned a diagnostic sign of fracture of the jaw which he had brought before the International Congress of Medicine in 1913 and which even yet had not appeared in the textbooks. The sign was the raising of the sublingual fold into a smooth elongated swelling with effusion of blood into the floor of the mouth.

TREATMENT OF TRAUMATIC HAEMOTHORAX

At a meeting of the Section of Medicine of the Royal Society of Medicine on November 26, with Sir MAURICE CASSIDY in the chair, the subject of discussion was the treatment of haemothorax.

Dr. F. G. CHANDLER said that haemothorax might be classified as (1) simple and non-infected, small or not small;

(2) infected; and (3) complicated by other factors, as, for example, open wound of thorax; in-driven splinters of bone, missiles, or clothing; damage to the lung with or without retained foreign body; pneumothorax, valvular or otherwise; perforation of diaphragm, and injuries to other parts. If the dome of the diaphragm was obscured or almost obscured there was probably half a pint of fluid or more. In the treatment of simple non-infected haemothorax the first essentials were rest and treatment of shock, blood loss, and pain, relief of cough and dyspnoea, and promotion of sleep. Some advocated auto-transfusion with the blood from the haemothorax, but he did not like the idea because of the possibility of latent infection. The sulphonamides would probably be used in the attempt to limit, control, or prevent infection, but from experience with empyemas it was not to be expected that these drugs would entirely prevent infection of the haemothorax. Early aspiration and replacement prevented loculation and possible infection. There was no need to emphasize the fact that to aspirate any considerable quantity of fluid without admitting air was highly dangerous.

When to Operate

Mr. GEORGE A. MASON said that unless a large vessel was injured bleeding after a closed haemothorax was apt to cease spontaneously by clotting. This mechanism functioned earlier rather than later because of the severe degree of shock manifested in many of these cases, especially if intercostal nerves were damaged. Similarly, the consequent collapse of the lung tended to check further bleeding from wounds in that organ. Reactionary haemorrhage of any magnitude called for exploratory operation. Infection was evidenced by a rise in the leucocyte count, the presence of pathogenic organisms in the fluid withdrawn, and the general clinical picture. If infection did not develop the haemothorax might be allowed to absorb spontaneously or aspiration and air replacement might be employed. Massive clotting might occur and give rise eventually to calcified patches. Personally he preferred to reserve operation by evacuation for those cases in which there was the further complication of infection. Routine exploratory operation had been advocated for all wounds of the chest seen after the first twelve hours, but if there was no evidence of progressive haemorrhage and the situation of the wound did not suggest involvement of the abdominal viscera then an operation should not be undertaken for small non-sucking wounds. Evidence of continued bleeding was an indication for operation. Careful radiological examination of the state of affairs within the chest before operation was advisable, and two films were necessary—one the standard antero-posterior, and the other with the patient in the prone position. Preparation for operation should be by preliminary rest under morphine, during which a blood transfusion might be given if required. One of the principal objectives in any thoracic operation was to restore the maximum functional efficiency of the chest and to obtain complete occlusion of the pleural space by expansion of the lung. In some instances plastic procedures on the chest wall would be necessary.

Early and Late Treatment

Dr. CLIFFORD HOYLE said that during the last war traumatic haemothorax had practically no mortality after two days if it remained sterile, but infection was common, occurring in one-third of all the patients, and in these the prognosis was poor, mortality approaching 50% within a few weeks. Surgeons were now better informed of the circumstances which made infection within the thorax so harmful. From the point of view of treatment during the first few hours all patients with haemothorax could be grouped together, for the initial shock of the injury had to be controlled, the effects of haemorrhage overcome, and the pleural tension relieved. They should be rested in a sitting position if there was any respiratory difficulty. Morphine was wanted for the relief of pain and for securing sleep, and Herringham, writing of his experiences at a casualty clearing station during the last war, remarked that he never saw morphine do harm. Another point was that these patients needed all the reassurance that could be given them, and there was a useful place in treatment for hyoscine and phenobarbitone. The sulphonamides should be given as early as possible, though whether they would prove as valuable in infection of the pleura as in that of the lung remained to be seen.

In simple haemothorax, whatever the symptoms, a sample of the blood should be obtained to confirm the diagnosis and to exclude infection. There were good reasons why a small haemothorax should be treated as a routine by air replacement. One of the most obvious was the length of time required for these effusions to absorb. If infection did occur after air replacement had been done there was at least a likelihood that the process would be localized. Compound haemothorax included all those examples of the traumatic condition which were accompanied by evidence of serious injury to the lung or chest wall or by retained and significant foreign bodies. The advantages of surgical treatment—thoracotomy—were numerous. Emergency surgery, however, was restricted by many factors, and it was not in any event available save during a limited period. But the result could be dramatic, and patients who would otherwise have weeks and months of illness recovered rapidly. The possibility of infection in the haemothorax must constantly be borne in mind. It might occur late—even several weeks—after the injury. The only certain means of diagnosis was the aspirating needle. The correct treatment of haemothorax in its early stages was repeated aspiration, and it was a mistake to insert a drainage tube until the infection had become local.

Clotting in Haemothorax

Mr. J. E. H. ROBERTS said that in a simple haemothorax, where the haemothorax was an incident in a more elaborate injury, the question of operative treatment did not arise, for it was a question of operation on the other condition and the haemothorax was incidentally removed. Dr. Chandler had said that if the dome of the diaphragm was obscured probably half a pint of fluid would be found. He would go further than that: he had discovered that where the *x*-ray report said there was a little fluid in the costal angle he was able on aspiration to get out from 10 to 14 oz. In an adult man, if any fluid at all was visible by *x* rays it amounted in volume to many ounces.

In the middle of the last war a French physician went into the question of clotting in haemothorax and showed that when blood was aspirated it was no longer capable of clotting. From that he went on to suggest some anti-coagulant factor present in the blood. In spite of that the present speaker believed the reason why the blood did not clot was because it had clotted already. A large number of patients had been seen since the last war with gross functional disability and complete immobilization of the ribs and diaphragm because the haemothorax had been allowed to absorb. If the blood did clot it could not be absorbed until it had been first liquefied by the action of a proteolytic ferment upon the fibrin which was formed. The treatment of haemothorax should always be by removal of blood at as early a date as was considered advisable in view of the risk of haemorrhage starting afresh if the blood was removed too early. In most cases aspiration through a needle with air replacement was the treatment of choice. The blood having been removed by aspiration, if there was any *x*-ray evidence of blood clot (and blood clot showed quite clearly in the *x*-ray film) the clot should be removed. If this removal was attempted within the first three or four days it was not necessary to do an open operation and perform a thoracotomy. It was quite easy to pass the cannula, as was done in dividing adhesions, and to pick up the clot with an aspirating tube, sucking it out through the tube completely. This he had done on several occasions, but it was impossible to do it as late as the tenth day because then the clot was so formed that it could not be broken up and removed without opening the chest.

Breathing exercises should be instituted as soon as the patient was fit for them. He agreed that it was impossible to tell from the physical state of the patient or his temperature or pulse whether infection had arisen; the test of a sample removed was the only evidence. He was not fond of treating any form of fluid in the chest by repeated aspiration. It was better in the majority of cases to put a self-retaining catheter in an intercostal space through a cannula. If the tube was attached to a water-sealed bottle a continuous drainage was effected instead of an intermittent one, and the

risk of loculation of fluid in the pleural cavity and non-expansion of the lung was reduced to a minimum.

Dr. J. L. LIVINGSTONE said that he had seen in the Dunkirk cases a number of infected haemothoraces in which a drainage tube had been put in and every precaution taken but the patient had developed a chronic empyema with infection of the lung. He agreed that in theory with the intercostal tube and siphon-suction there ought to be less liability of loculation and partial expansion in the lung, but he was at one with Dr. Hoyle in advising aspiration of fluid from time to time until the pus had become loculated at the back. With regard to Dr. Chandler's statement that gas replacement was never dangerous, his own experience with Dunkirk patients was that there was a good deal of difficulty in "gas-replacing" some of these men and a possible risk of infection. In war, with many infected wounds, the process of gas replacement had to be done in a special room or theatre to minimize the risk.

Aspiration and Air Replacement

Mr. A. TUDOR EDWARDS said that in the treatment of the simple condition he was entirely in favour of aspiration or removal of the contents of the pleura as soon as possible—a matter of hours. The incidence of infection in the penetrating types was very high. If the effusion, which formed an excellent medium for organisms, were removed the number of cases likely to become infected was limited. One point about gas replacement was that it did enable quite small foreign bodies to be seen. On the question of treatment when infection had arisen there was some difference of opinion whether an intercostal drainage or an aspiration should be done. Many years ago he discovered a method by which infection of the chest wall could be avoided—namely, by cutting down on to the ribs, using a local anaesthetic, aspirating through the intercostal space, and packing the wound with gauze. When the next aspiration had to be done this was removed and the procedure took place through the same area.

Mr. V. C. THOMPSON said that the immediate treatment of haemothorax was essentially the immediate treatment of the wound of the chest. In uninfected cases there was no difficulty in aspirating the blood, and it had been his aim to aspirate it early, and all these cases had cleared up, with complete re-expansion of the lung, after three aspirations on the average. The character of the fluid was of some interest because every haemothorax sooner or later was associated with effusion. Air replacement had been generally advocated at that meeting, but it was not clearly stated when to replace by air and when not. He regarded air replacement as an emergency procedure. Air was admitted to the chest to collapse the lung and prevent further haemorrhage. The next aim was to restore the function of the lung and to obtain re-expansion, and in order to do this it was necessary to remove the air as soon as it was safe. As a general rule it was unwise to admit air to an infected pleural space, for the reason that a complete empyema would be produced. Therefore the only use for it so far as he could see was to control haemorrhage. It was very much easier to obtain local re-expansion in the earlier stages than later on. Finally he stressed the great value of breathing exercises in restoring lung function. The improvement in vital capacity and chest expansion was a great factor in restoring people to normal health.

Mr. C. PRICE THOMAS said that some measure other than aspiration should be undertaken if clot occurred inside the chest. He agreed with Dr. Hoyle as to aspiration until the effusion was localized, and he also agreed in theory with Mr. Roberts as to the value of the intercostal drain. On the other hand it was very difficult to keep the intercostal tube an airtight structure. Air did get in and the object of the whole operation was then defeated. The technique which Mr. Edwards had described of cutting down for repeated aspiration had been well known to him for years and had proved useful in this type of case where anaerobic infection occurred.

Mr. R. C. BROCK also said that it was necessary to have in mind the possibility of clotting, which would require evacuation by some major procedure. He agreed with other speakers as to the necessity for early aspiration of a clot, but in practice one rarely got the opportunity of aspirating within a few hours. The case was not received in time; moreover, during the first six or eight hours the patients were shocked, and in view of their experiences, including possibly a long ambulance journey, it was desirable to leave them alone for twelve or eighteen hours. It had been said that haemothorax was an incident which could be dealt with at the same time as the surgical condition. In practice what often happened was that the presence of a large haemothorax was seized upon by those in attendance on the case to the exclusion of the surgical condition. A wound of any considerable size in the chest wall might, of course, be sucking, but if there was a large haemothorax the wound did not suck; it leaked with each respiration. The problem of infection had been glossed over in many cases. If a big haemothorax became clotted one was almost in an impasse. There was no easy form of treatment at all. Aspiration was almost futile; the clot could not get through the needle.

Mr. O. S. TUBBS said that it had been stated that aspiration was the only means of confirming the presence of infection, but the reverse was sometimes true, and aspiration might give a misleading indication. He recalled two cases in which the aspirated fluid was sterile, but on rib resection the fluid was found to be loculated, and the aspiration had been concerned with one of the clean loculi, whereas there were infected loculi.

CLOSED-PLASTER TREATMENT OF WOUNDS

At a meeting of the Section of Orthopaedics of the Royal Society of Medicine on November 30 Mr. S. L. HIGGS, president of the Section, opened a discussion on the closed-plaster treatment of wounds in the light of recent experience.

Mr. HIGGS said that it was with "incredulity mingled with horror" that some ten years ago at the Royal Society of Medicine some of them listened to Winnett Orr describe his treatment for osteomyelitis by opening up the infected area before drainage, plugging with vaseline gauze, and then locking up the whole limb in a plaster-of-Paris case and leaving it for a matter of weeks. His results, however, were impressive, and orthopaedic surgeons very soon tried out this method and found it a good one. It was afterwards extended to the treatment of compound fractures whether infected or not. It was not until the fighting in Spain that the Winnett Orr technique was applied to wounds, and the remarkable results reported by Trueta appeared to have given ample proof of the value of this method. Some of them remembered the hospital wards of the last war, with rows of injured men with shattered limbs for the most part imperfectly immobilized because it was considered necessary to have ready access to the wounds. These wounds were subjected to daily or twice-daily dressings, and it seemed to be an endless struggle to clean up the wounds by removing the pus and irrigating the cavities with antiseptics. Delayed union or non-union was common, and throughout the treatment pain and toxaemia persisted. The contrast between that unhappy picture and the wards of the emergency hospital in which they were meeting was very striking. Most of the men who had had severe injuries of the arm or shoulder were fixed up in plaster and were able in a few days, free from pain and fever, to be out in the open. The closed-plaster method represented a noteworthy advance in treatment, and he could not agree with the writer of a recently published book on war injuries who considered this method to be still on its trial. There had been ample opportunity of employing the method since casualties were received from France.

He surveyed the results of forty-four consecutive cases of fracture, almost all in wounded soldiers. The majority were received at the hospital five days after being wounded, when they were still in their uniforms, their wounds covered with first dressings only and heavily infected. It was too late for wound excision, and all that could be done was to cut away sloughs and dead tissue, remove metallic foreign bodies under *x*-ray control, and, most important of all, apply ample drainage by free incision. The wounds were then dressed in gauze

in the approved manner. Although in some cases anxiety was felt because *x* rays showed the presence of gas in the tissues, in only one case was it necessary to remove the plaster before the appointed time.

Merits and Demerits of Closed-plaster Method

The merits of the closed-plaster treatment were that it relieved pain and toxaemia and secured immobilization of the broken limb, at the same time allowing mobility of the patient. It promoted the growth of highly vascular granulation tissue, and, owing to the rapid covering of the bones with this tissue, necrosis and sinus formation were most exceptional and bony union took place in minimum time. In only two of his cases did non-union persist, and in both of these very large gaps in the bone were present. Owing to the rapid healing of the soft tissues and union of the fracture it was possible to carry out nerve sutures, when associated nerve lesions were present, at an earlier stage than in the last war.

The first disadvantage of the method was the complication due to likely errors of technique. In three cases on removing the plaster after the patient's arrival at hospital gangrene was found. This was not a criticism of the method, but only an instance of its bad application and after-care. Surgeons who attended these cases must be familiar with plaster-of-Paris technique. It was quite clear that trouble would arise if drainage on to the skin was not ample. The second disadvantage was the difficulty of maintaining extension. Where extension had been really necessary he had deferred the application of the closed plaster until the fracture was well on the way to union. The third serious disadvantage was the smell. Mercurochrome in solution in the water in which bandages were soaked, eucalyptus oil, and other procedures had been tried without much effect. From Oxford they had now received some deodorizing bags of unstated composition which were most successful in preventing smell, though they had the disadvantage that in the case of the arm the hand could not be examined nor used freely by the patient. Another demerit was that wounds treated in closed plaster remained "messy" until the plaster was finally discarded. In some cases the surrounding skin showed a septic dermatitis which was most irritating to the patient. Where dermatitis persisted after removing the plaster *x*-ray treatment might be effective. Finally, the quality of the skin which grew after the healing of the wound beneath the plaster was poor, often ridged and thickened, sometimes resembling a keloid scar, and frequently raw areas were present. He had therefore sought the help of the plastic department, and when fractures had united and granulations had replaced the lost soft tissue the plastic surgeon had been able to clear up the infection. Then, within a few days, it had been possible to apply skin grafts.

Bacteriology of Plaster Cases

Dr. E. T. C. SPOONER described twenty-nine cases which had arrived at the hospital in May and June and had been treated by the closed-plaster method. The pus inside the plaster was extremely thick with bacteria. Sometimes when the pus was inspissated and stained by the Gram method the film appeared blue to the naked eye because it was composed entirely of Gram-positive bacteria. Out of the twenty-nine cases twenty were heavily infected with *Str. haemolyticus*. Infection with *Staph. aureus* was frequent, diphtheroid bacilli were common, *B. coli* was present in fifteen cases, and *Cl. welchii* in large numbers in two cases. But the outstanding organism was the haemolytic streptococcus. Of six of the patients who were very well, four were found to be infected with this organism. Even though to some of the patients treated in plaster the presence of the streptococcus did not matter greatly, it constituted a menace to other patients treated in the same ward and to the attendants. Of fifteen cases examined repeatedly, eight had acquired a new bacterial species during their treatment, and in three instances the bacterium newly acquired proved to be the haemolytic streptococcus. Whether the bacteria passed through the plaster from without inwards or was introduced when changing the plaster he did not know, but if they could not pass through the plaster from without inwards they could certainly pass from within outwards. Evidence of cross-infection occurring during treatment had been obtained in certain cases.

Dr. J. TRUETA said that he was glad to hear the British experience, which carried further the experience gathered in Spain. In Spain the treatment was applied more quickly, the cases being sent to hospital direct from the scene of the injury, whereas the majority of the cases here had been those of soldiers who had arrived at hospital in this country several days after their wounds had been inflicted. If in spite of this both lives and limbs were saved it proved the treatment to be of great value. In his experience dermatitis did occur with closed-plaster treatment, but it was not a serious complication. Following Dr. Trueta's remarks, Surgeon Rear-Admiral GORDON-TAYLOR expressed gratitude to him for his services to British surgery.

Mr. R. MOWLEM said that he had seen a number of these limbs shortly after removal of the plaster. A great proportion of the wounds might be expected to heal with a reasonably good scar. Colebrook's recent work had proved conclusively that the haemolytic streptococcus, which was the chief offender, could be eliminated from the wound with almost complete certainty after two days of intensive treatment with a sulphonamide compound. Dr. J. C. SCOTT mentioned investigations which he had undertaken with Professor Gardner at Oxford on the bacteriology of these cases. The investigations had been carried out by incorporating a small window in the plaster. It appeared that the flora of the wound became established within two or three weeks, and minor changes occurred later. Relatively small wounds healed very well under plaster, but a large wound took a long time to granulate; when this occurred the plaster should be removed as soon as possible and the skin grafted. Cases with the haemolytic streptococcus in the wound after changing the plaster might show a rise of temperature; with the giving of sulphanilamide the temperature subsided and they went on to improve.

Mr. K. H. PRIDIE remarked on the need for correlating treatment with blood pressure. If the blood pressure had dropped to 70 mm. Hg no surgery should be done straight away; the blood pressure should be above 100 mm. if possible. Lives were saved by waiting, not by "pouncing" on these cases. He had had the misfortune to work in a hospital receiving casualties when the supply of water was cut off as a result of air attack. Every hospital should have a second supply of water. In the later treatment of wounds he had adopted the Böhler technique. There was an open wound and skin-tight plaster, with perfect healing. Another device employed was refrigeration of tissues. With a very severely wounded limb and precarious blood supply the limb might be saved if it was kept cold by means of ice-packs. The patients had far less pain and practically no oedema, and gangrene was prevented. Colonel BROOK said that owing to transport difficulties it was considered impossible to put leg wounds in plaster when evacuating patients from France, and they fell back on the Thomas splint. So far as wounds of the upper limb were concerned, they started by putting them in plaster, but in the end they were content to leave the arm with a bandage to the side. That degree of immobilization appeared to be sufficient and made transport much easier. A débridement operation was done, and flavine dressings used. A sulphonamide compound was applied locally. In a number of the wounds there were gas-forming organisms, but the presence of these did not seem to mar the effect of the skin graft.

THE SHELTER PROBLEM

At a meeting of the Liverpool Medical Institution held on November 7, with the president, Prof. A. LEYLAND ROBINSON, in the chair, Dr. C. O. STALLYBRASS opened a discussion on "The Shelter Problem from the Medical Point of View."

Dr. Stallybrass said that the shelter problem was mainly epidemiological, but was also parasitological, as bugs, fleas, and lice might breed or be transferred in shelters. Shelter marshals should be trained in the recognition of these pests. Infectious disease, other things being equal, spread in proportion to the proximity and aggregation of persons; the greater the number of persons in proximity the greater the risk of infection. A policy of dispersal was sound epidemiologically

as well as in relation to air raids. The crowding in shelters was perhaps ten times that permissible under normal conditions ashore, and the risk of infection was proportionate. Further, in many diseases the risk was proportionate to the length of exposure. Infectious disease was spread mainly by parasites, excreta, respiratory droplets, and contact. The parasitic and alimentary infections were absent or comparatively rare in this country. Respiratory infection accounted for nearly all the common infectious diseases prevalent here, such as measles and whooping-cough, diphtheria, influenza, and pneumonia. A considerable increase of these was to be anticipated. Droplets were of varying size; the larger ones, unless they hit their target on the human face, fell rapidly to the ground. Smaller droplets formed a mist, which either fell slowly or evaporated to infective "motes" which remained suspended for a long time. If the floor and walls were moist the droplets adhered to them; if the floor was dry infective dust might be raised. The relative humidity of the atmosphere would, in some degree, govern which of these things happened.

The remedies, Dr. Stallybrass continued, were, in order of value: (1) The use of small shelters, the number of which should be increased; this reduced the chances of contact. (2) Better ventilation, which would probably require some method of heating the incoming air. (3) Chemical disinfectants, which should be used as a very fine spray and repeated frequently; coarse sprays would only disinfect the floor. The action of such sprays was still a matter for investigation. (4) Continuous disinfection by ultra-violet light. The same result could be achieved, at less expense, by better ventilation with fans, etc.

Prof. W. M. FRAZER said that conditions of health in air-raid shelters were influenced by several factors, the most important being overcrowding. That overcrowding was serious could be shown by comparing the cubic space laid down in the Housing Act, 1936, for sleeping purposes of about 400 cubic feet for an adult, with the average of 32 cubic feet per person in the Anderson shelter, 24 cubic feet in the domestic communal street shelter, and about 50 cubic feet in the larger public shelters. If bunks were provided these allowances would be doubled, but the total accommodation would be approximately halved. The reduction of overcrowding by using private and communal basement shelters and an extensive programme of building should be the primary aim. Secondary but of considerable importance were, in large shelters, improvements in sanitary arrangements and ventilation, the provision of medical and nursing facilities, appointment of shelter wardens, the institution of a system of tickets, and the provision of facilities for making hot drinks.

Dr. R. G. WILLS advocated reinforcing a room, or part of a room, in houses instead of building communal shelters; this would give equal protection and solve many difficulties. With regard to deep shelters, some two years ago he had watched a new sewer being made by tunnelling under the roads from openings thirty or forty yards apart and putting in concrete pipes four or five feet in diameter. Many men were employed and machinery, but the work took a whole year to cover some mile and a half. The structure would not have made a commodious shelter. The time factor alone made deep shelters impossible, except in some special localities. Dr. A. E. HODGSON said that the close congregation of children for long periods in the humid and stagnant atmosphere of an air-raid shelter must very greatly multiply the opportunities for droplet and contact infection. For some time past the number of children admitted to the Fazakerley Hospitals with multiple infections had steadily increased, and the control of cross-infection in wards became a serious administrative problem. Large-scale inoculation of children against diphtheria, scarlet fever, and whooping-cough should be instituted as rapidly as possible. There must be a "time-lag," but that was inevitable in the circumstances.

Dr. Mark R. Levey, lecturer in ophthalmology in the University of Alberta, has been appointed clinical professor in the subject and head of the department of ophthalmology and oto-rhino-laryngology in succession to Dr. Claude V. Jamieson.

Correspondence

Sulphanilamide and Wound Infections

SIR,—There is little doubt that the wounded owe a debt of gratitude to Colonel Leonard Colebrook. At the hospital in which I worked in France our efforts to compare sets of cases were unfortunately frustrated, so that the short experience which the staff had in the use of sulphanilamide by the mouth and by "pack" could do little more than leave impressions. These were communicated to a senior officer who was in a position to collect information about the wounded.

During the last four months there have been a large number of open fractures due to bombs and accidents in the hospital to which I am "loaned" and in the hospitals of the Sector which I visit. The treatment of these is: (1) treatment of shock; (2) operation on the wound as soon as primary shock is relieved; (3) fixation in plaster; (4) sulphanilamide treatment.

Sulphanilamide by the mouth from the beginning of treatment is now used throughout the Sector in these cases. The dosage suggested by Colonel Colebrook in France has been used generally, but some surgeons employ up to 18 grammes in the first four days. After four days this is stopped. The "pack" is not used on many occasions. This routine treatment is comfortable for the patient and produces rapid healing of the wounds. Granulation tissue has usually covered all bone during the three weeks elapsing before the first dressing. The dressings are limited to the "change of plaster." Gas infection exists both clinically and pathologically, even in patients who are injured in sitting-rooms, but reacts to treatment quickly. No modification from this treatment is necessary in knee or other joint injuries.

The pack is used sporadically, usually when shock has necessitated delaying the operation for twelve or more hours. The absence of infection in the wounds of these cases at the first dressing is strongly suggestive of its value. I am convinced that a pack was the factor in keeping clean an open fracture of the femur, four inches of which was protruding from a muddy and oily wound for over twelve hours. The motor-cycle accident caused a fractured tibia into the knee-joint and patella of the same limb. Treatment for shock necessitated delay in the operation. Secondary suture of the thigh wound was possible ten days after the primary operation. Surgeons whose cases I see hesitate to make use of it when operating on cases early, as they have no reason to be disturbed by the results they are obtaining. In France Colonel Colebrook suggested 15 to 20 grammes should be the maximum dose in a pack. I have seen four cases where 30 grammes were used in the pack and 13.5 grammes given by the mouth in the first four days without symptoms of poisoning. My observations indicate that the sulphanilamide is not absorbed *in toto* by blood clot, so that if the blood in the wound makes a large clot round the pack only a portion of the pack is absorbed.

Colonel Colebrook has asked surgeons to make observations on comparable pack cases, and says, "By daily film and cultures the pathologist will readily detect any considerable effect of the drug" (November 16, p. 682). He suggests open fracture of the forearm as one type of test case. If the daily dressing were still the order of the day this would be simple, but at the present state of our knowledge we depend on operative treatment, fixation in plaster—which, *inter alia*, prevents frequent dressings—and sulphanilamide. The odd case that cannot be put in plaster is a poor test case. The observation on cases purposely not fixed in plaster would not be of value, and the cutting of a window in the plaster will remove most of the benefit to be gained by employing plaster. Anxious as many of us are to assess the value of part of any treatment we employ, it is obviously no test if we modify the treatment to test the case. There is a greater chance of comparing wounds due to road accidents than bomb wounds, as the conditions may be favourable for secondary suture within two weeks. In the case of the calf wound these are put in plaster in this Sector, but elsewhere perhaps tests may be possible.

Can Colonel Colebrook suggest other methods by which the surgeon can co-operate with the pathologist? Many of us will endeavour to help rather than that we should continue to get only impressions of the value of sulphanilamide at the outset of treatment.

My colleagues dealt with cases that reached hospital some days after the evacuation of Dunkirk. The open fractures of long bones and joints did not always follow the happy course of those now dealt with early. Sulphanilamide was probably helpful in the early stages, but when there is prolonged wound infection with sequestration in a patient whose red corpuscles are reduced to 3 million and the haemoglobin is under 70%, repeated blood transfusions are of greater benefit than sulphanilamide by the mouth. In some cases sulphanilamide has been added to the transfusion, but evidence suggests there is no advantage in employing it. I agree with those who consider that sulphanilamide plays a part in the prevention of wound infection, but once infection is established its value is not proven.—I am, etc.,

Epsom, Surrey, Nov. 25. ST. J. D. BUXTON.

Influenza Epidemics

SIR,—It seems doubtful whether in the whole of its long history epidemic influenza has appeared in this country, unless the continent of Europe has previously been affected. As has been so strongly expressed, the unnatural conditions arising at the present time would favour a *spread* of this disease, but can it have, or rather has it ever had, its actual genesis in England? Communication with the Continent is now vastly restricted and a policy of rigorous quarantine of ships may not be impracticable. Should influenza appear on the Continent in epidemic form, the enforcement of such quarantine might be the saving of thousands of British lives and a very real factor in our effective conduct of the war.—I am, etc.,

Aysgarth, Yorkshire, Nov. 30. W. N. PICKLES.

Lice in the Shelter

SIR,—It is not surprising to read of the onset of what the Germans call *Kellergrippe*—cellar 'flu—the symptoms of which seem to read like those of trench fever. It is remarkable that this type of infection has not been suspected, since all the conditions of shelter life are exactly those of trench warfare, only more so. It would seem important, therefore, to deal with the louse problem, since trench fever and presumably shelter fever will be transmitted through the same agent.

It is not that this disease has a large mortality, but from the point of view of industrial efficiency it is as serious as any, because it renders the subject liable to recurrent attacks, which may go on indefinitely and lead to a state of chronic ill-health. It should not be beyond the ability of the various boroughs to arrange for free baths and decontamination of clothes and bedding at regular intervals, and indeed the admission ticket to a public shelter should be the proof that such decontamination has been done. As in so many other matters of the kind, it seems futile to have the powers and not to use them.—I am, etc.,

Highgate, N.6, Nov. 26. W. LEES TEMPLETON.

Immunization against Respiratory Infections

SIR,—I read with interest the third editorial article in the *Times* on November 4, under the title "Preventing Epidemics" (see *Journal*, November 23, p. 711). It seemed to me, however, that there were certain statements which, though truthful in themselves, might easily lead to misconception in the lay mind as presented without further qualification.

In stressing the "doubtful virtue" of inoculation the following statement was made with regard to protection against winter ailments, such as coughs and colds, influenza, bronchitis, and pneumonia: "The careful work done by medical officers of public services has made it clear that inoculated persons tend to suffer as much or more than persons who have not been inoculated." That statement, in my opinion, appearing where it does, might well lead to a widespread misconception of the facts. It would be nearer the truth to say that carefully collected statistics make it appear that inoculation against the diseases in question, given in a certain manner—namely, by standard dosage of standard strength and of standard material to persons in widely differing conditions of health and immunity—has afforded protection in some cases and has done harm in others. While scientists on the Medical Research Council and elsewhere are devoting their energies to discover wherein lie the technical faults producing the failures, it can hardly help them in their work that the failures should be misrepresented to the public as a failure of the whole principle of inoculation when applied to these diseases.

The article concluded as follows: "Nor does it appear that strain and anxiety have so far added in any important degree to the incidence of disease. The nation at the present time is in excellent health and spirits." This statement at the end of an unusually healthy and sunny summer is probably true, but dare we conclude from this that: (*a*) As a general rule strain and anxiety have no effect upon general health and the liability to disease? (*b*) That because during the summer months strain and anxiety have shown no marked effect upon the public health, we may therefore conclude that this will be the case throughout the coming winter? This would be a daring assumption hardly warranted by the experience of previous world wars.—I am, etc.,

London, W.1, Nov. 22. J. D. HINDLEY-SMITH.

The Problem of the Shelters

SIR,—I read with interest and a good deal of surprise the letter by Mr. H. Mason (November 23, p. 720). The surprise is occasioned by the fact that although he claims to have studied the problem of the shelters in France and Germany, he does not appear to have devoted a great deal of time to the study of actual shelter conditions in this country. Had he done so he would realize that it is not a question of whether more or less reliance should be placed on this or that type of sanitation, but that the first need is the provision of any type of sanitation at all. The present facilities are either non-existent or miserably inadequate. There seems, however, no reason why shelters near the surface should not be fitted with water-closets once this first need has been met. The possibility of sewer damage has not led to a general policy of abandoning the use of water-closets in other types of buildings, and there seems no special reason to depart from this attitude in regard to shelters. This is not to say that emergency provision for the disinfecting of excreta should not be made available.

I doubt whether Mr. Mason has taken the trouble carefully to read any of the publications of the A.R.P. Co-ordinating Committee, whose policy he proceeds so destructively to criticize. Had he done so he would know that the Haldane type of shelter is not stereotyped, and that once the initial stages are completed additional layers of reinforcing material can be added. It is enough for the present if we can meet the present menace. Most casualties so far have resulted from 500-lb. bombs or less. Concentration on big-bomb production would mean drastic reorganization of German factories, and this would give us the time we need further to improve our shelters.

Provision of an adequate number of Haldane type shelters would not increase but would reduce overcrowding, or "herding," as Mr. Mason prefers to call it. The masses of people who, at present shunning the wet and dangerous surface shelters, crowd into basements and tubes could be spaced out and provided with bunks so as almost to eliminate the danger of droplet infection.

I am fascinated by Mr. Mason's suggestion that *adequate* shelter should be provided "inside the home." Does he suggest armour-plating the living-room? If Mr. Mason has visited any of the more severely bombed areas, which I am tempted to doubt, I am sure he would not suggest that anything less would make the average suburban house proof against blast, much less against a direct hit. There are certain passages in Mr. Mason's letter which are shrouded in mystery. What does he mean by "horizontal intensification," and of what?

Finally, what authority has he for claiming that "prevention of herding" is the "accepted method of minimizing the

physical casualties of air attack"? No statistician would for a moment support such a patently erroneous contention. Given the same number of persons in the same area, say, the London area, all invisible to the enemy bomb-aimer, their risks of being hit are the same whether they are scattered throughout the area as individuals or gathered in large groups, and their chance of survival depends entirely on the adequacy of the protection provided. In most areas away from tubes, strong basements, and caves, this is *nil*, as the recent weather has rendered almost all the Anderson, trench, and surface shelters untenable.—I am, etc.,

B. H. KIRMAN,
Nov. 23. Secretary, the Socialist Medical Association of Great Britain.

Disinfection by Light

SIR,—I have read your leading article on the disinfection by light (November 23, p. 707) with great interest. In general the work of Hart must be supported, but there are many practical difficulties in its application. The intensity of light necessary is great, and the costs of installation of adequate apparatus may give difficulty.

Following the pioneer research of Downes and Blunt it is now proven that all pathogenic bacteria and parasites and infective viruses can be destroyed by ultra-violet rays. The luminous and long ultra-violet rays can be bactericidal to some organisms if the intensity of rays is powerful.

During the past months I have carried out investigations which show that the skin surface can be sterilized by intensity of light equivalent to one-fourth of the energy necessary for erythema reaction of the normal skin. Bacteria are destroyed by ultra-violet rays from wave-lengths 3,600 Ä.U. and shorter; the rays which cause skin erythema are of shorter wave-lengths—that is, about 2,900 Ä.U. When the skin is artificially infected by rubbing the surface with a swab moistened with broth cultures of living bacteria (staphylococci, streptococci, etc.) exposure to light sources which emit ultra-violet rays will destroy bacteria and sterilize the skin. It is possible to sterilize the skin without causing erythema reaction.

The surface of septic wounds can be sterilized by rays of light. When the infection is very heavy the number of organisms can be greatly reduced. The penetration of ultra-violet rays is small, as rays are powerfully absorbed by amino-acids and the serum proteins. Staphylococci, coliform bacilli, *B. pyocyaneus*, Friedländer bacillus are all readily destroyed, but some of the haemolytic streptococci are more resistant to irradiation. The use of photodynamic sensitizers —rose bengal, methylene blue, etc.—will increase bactericidal action and penetration of the rays of light.

Hart's method of irradiating an operation field will destroy pathogenic bacteria in the air provided that the intensity and quality of the source of light employed are adequate. Ultra-violet rays destroy bacteria present in the atmosphere and the organisms which cause droplet infection. It is difficult to organize laboratory experiments which will prove that ultra-violet rays can reduce frequency of illness due to air-borne infections.

A suitable source of light for sterilization of the atmosphere would be the type similar to my "daylight lamp." The improved design of this lamp contains two low-pressure mercury arc lamps; each burner is sixty inches in length—one is made of clear quartz and the other is made of frosted quartz; in addition there are sixteen 100-watt tungsten-filament lamps. Spectroscopic examination shows that there is a relative high energy of the long ultra-violet rays (of wave-lengths 3,900 Ä.U. to 2,800 Ä.U.), in addition to the luminous and short infra-red rays. The rays emitted are powerfully bactericidal but have slow erythema-producing action, for patients can be exposed for one hour at a distance of thirty-six inches. Objects appear in their natural colours and there is a correct balance of luminous rays, as daylight effects are seen when tests are made by colour photography.

Sources of light can be employed for disinfection and sterilizing the skin and healing wounds; but the practical application may present difficulties. The expense of the installation of suitable apparatus may prove an obstacle when the other known methods of sterilization and disinfection are considered. —I am, etc.,

London, W.1, Nov. 25. ALBERT EIDINOW.

Perforated Peptic Ulcer

SIR,—Mr. J. Cosbie Ross (November 16, p. 665) is to be commended for providing a most readable and instructive article on a time-honoured subject. Having regard to the fact that 175 patients, some of them ailing from other causes and others operated upon days after perforations, are included, a fatal issue in only twenty-eight cases is satisfactory. I was glad to find "the normal-pulse-rate snare" re-emphasized, but more might have been made of the gradual disappearance of board-like rigidity, which takes place as the temperature rises and the patient recovers from his intense initial shock. It is this change which in my experience leads to mistaken diagnoses of appendix-peritonitis.

Years ago I described in the *Journal* a method of repairing perforations by means of a tail of omentum which was not detached from its parent structure. This rapid technique has proved uniformly satisfactory during a lengthy test period. It only demands a single row of sutures, and these can be tied quite securely over the resilient omentum without fear of tearing through the "oedematous friable tissue," to which Mr. Ross so correctly refers. An advantage of this method is the subsequent absence of dense adhesions—a most important point when partial gastrectomy rather than posterior gastro-enterostomy is envisaged.

As regards drainage of the abdominal wound, I have been impressed in late cases by the frequency with which local suppuration and partial breaking-down have followed complete primary suture. These complications result in my view from difficulty in maintaining surgical cleanliness of the divided tissues throughout the operation. I have not regretted inserting a glove drain through the peritoneum at the lower end of my incision whenever perforation is known to have occurred more than eighteen hours previously. Moreover, since adopting this measure I have seldom encountered a subphrenic abscess.

Finally, I am most interested to know whether Mr. Ross has yet made use of plasma transfusion as a pre- and post-operative adjunct in desperate cases. I have had only one instance in which I was able to employ this measure, but the degree of improvement was so gratifying that I intend to repeat the experiment whenever possible.—I am, etc.,

Aldershot, Nov. 21. C. J. CELLAN-JONES.

Pregnandiol Excretion in Pregnancy Disorders

SIR,—Dr. C. L. Cope's article (October 26, p. 545) rightly draws attention to certain limitations to the diagnostic value of pregnandiol analyses. In the course of two years' study of abnormal pregnancies I have found that in a small percentage of cases either no pregnandiol or only a trace is found at two and a half to three and a half months, yet the subsequent course of pregnancy in these women was uneventful. Accordingly, whenever a negative pregnandiol output is obtained at this stage an Aschheim-Zondek test should be carried out before it can be said either that pregnancy does not exist or that the ovum is dead. This is quicker and safer than waiting for a second analysis, as on one occasion two negative pregnandiol findings were obtained at two weeks' interval.

That very high values of pregnandiol may be associated with pregnancy toxaemia and foetal death was illustrated in cases cited by me fully in the May issue of the *Journal of Endocrinology*. It is impossible to determine to what extent the toxic condition was due to, or merely associated with, the abnormal hormone concentration. Where there is a sudden marked rise in pregnandiol output a toxic condition *may* exist. Where the foetus has been dead for some time the pregnandiol output naturally falls to low levels. It is well to note—as Dr. Cope states—that abortion can and does occur in association with normal and apparently adequate pregnandiol values in early and mid-pregnancy. There can be little doubt, however, that a knowledge of pregnandiol output can frequently be of diagnostic value; thus, estimations of pregnandiol excretion at intervals throughout pregnancy can be of assistance to the clinician administering progesterone therapy in cases of recurrent abortion. Owing to its limita-

tions and to the amount of work that each analysis involves, the test cannot supplant the Aschheim-Zondek or Friedman but is a useful adjunct to these and provides information both in the pregnant and in the non-pregnant woman that neither of these tests can give.—I am, etc.,

Edinburgh, Nov. 27. A. M. HAIN, Ph.D., D.Sc.

Treatment of Burns

SIR,—Ever since before you published my article in 1927 I have believed whole-heartedly in the exudation principle. I make bold to question whether those who have pinned their faith to tanning can ever have seen a burn under successful treatment by the former method. Some of them write as if there were no other way. Glycerin may be needed to start the process (after removing sloughs, if necessary), but, once begun, we have in it not a vicious circle in action but a truly beneficent one. The pouring out of serum turns back the ptomaines from reaching the circulation, and, if present, the bacterial toxins also, into the dressings. In fact I have seen pools of this poison-bearing liquid lying round the patient on the rubber sheeting. It could be scooped up with a saucer. (Anything like a paste would have been quickly washed away.) Best of all, the patient is no longer ill. His vomiting is stopped, if he ever got so far as to have that most sinister of complications, and he asks for his food and drinks and exudes again through his burnt surface.

Some have deplored the loss of body fluids, but none should under such circumstances as these. If the man did not ooze he would be poisoned, including kidneys and the whole vascular system. He would probably be vomiting, and so could not drink. We could only do our best then with saline per rectum, and so on, in the hope of getting him to secrete again.

When means of tanning the under surface of a burn directly have been found we shall all doubtless be glad to give it a trial, for the wet method admittedly entails a lot of work for the nursing staff. What was applied as, for example, 3% to 5% salt solution speedily becomes diluted, with potency reduced *pari passu*. If it reaches 1% it may be reabsorbed. Dressings must be renewed frequently. Every surgeon believes that hypertonic solutions are good for ordinary wounds that cannot be closed: how then can it be otherwise with wounds of this sort? And they can perfectly easily be combined with eusol or one of the dyes, if desired, and reinforced with glycerin, as mentioned above. It would be helpful if those who refer to saline as a dressing would say the strength of it, and those who quote cases and ask us to compare their severity would speak definitely as to such evidences of toxaemia as anorexia and vomiting, temperature, and renal function. The exudative process is a natural and health-giving one, and in its presence we can count on the greatest speed in healing with the minimum of scarring.

Nascent eusol solution (one-third normal) in 5% saline can be prepared by wetting boric lint with a suspension in it of calx chlorinata 15 grains per 8 oz. It should, of course, be only warmed—not made hot—and covered with waterproof material.—I am, etc.,

Doncaster, Nov. 21. W. REGINALD WILSON.

Hepatic and Renal Lesions after Severe Burns

SIR,—Can these lesions be due to the modern coagulation treatment with tannic acid—preventing toxic substances formed in the burns escaping by the surface and thus making absorption the only alternative?

With the old-fashioned carron-oil treatment discharge from the surface must have carried these toxic substances, or most of them, into the dressing instead of into the blood. For many years I have treated burns and scalds, some of them very extensive, with complete success, using carron oil to which I added half a drachm of tr. opii to every ounce of the oil.

The added tr. opii seems to stop the pain immediately. If the part becomes septic, warm—not hot—boric fomentations applied very wet soon clear it up.—I am, etc.,

Inch, Co. Wexford, Nov. 13. W. F. MOORE, M.B.

Eucalyptus Ointment for Burns

SIR,—Our practice is situated in an industrial area where burns and scalds are common. In addition we act as accident doctor to five collieries and are called upon to treat burns and scalds fairly frequently, both before and after admission to hospital. These are of all degrees, and chiefly affect the exposed parts of the body—namely, the face and hands.

After using various treatments it has become almost a routine to apply eucalyptus ointment 10% as a dressing both before and after hospital treatment, the latter usually tannic acid. We found most cases discharged from hospital after tannic acid treatment went septic with excessive granulations and subsequent deformity, and with the application of eucalyptus ointment this all cleared up and no other treatment was required to promote cleansing and healing. After primary application of this ointment following the usual cleansing the wound remains clean, healthy, and heals spontaneously. We have never seen any deformity or pain resulting therefrom.

We see no reference to this treatment in recent literature, and can only recommend it from practical clinical experience.—We are, etc.,

A. B. SLACK.
Barnsley, Nov. 20. J. J. P. MACMAHON.

Benzyl Benzoate Treatment of Scabies

SIR,—It is with much interest that I read Surgeon Lieut. R. Ernest King's article on the treatment of scabies by the above method (November 9, p. 626). Our results in a naval establishment receiving personnel direct from civil life compare very favourably with his. In a series of some seventy cases, treated by the above twenty-four-hour method, we have had only two recurrences, both superficially infected, and which were cleared up entirely on the second course of treatment. The other case was more resistant. In this the patient, who cannot have been of a trusting disposition, and who had obviously suffered previous infections, treated himself with sulphur ointment after receiving our treatment. Much to our delight he produced a classical sulphur dermatitis, which irritated him not a little.

The method as employed by us differs in some details of application. All cases of scabies are admitted overnight to a ward reserved for them. There they are stripped, and all their clothing and bedding is sent for disinfestation immediately. The patient is bathed, scrubbed with soft soap and an ordinary scrubbing brush, and anointed with the lotion for a good five minutes. The bath is then emptied and cleaned, so disposing of all the dead and dying parasites. On refilling the bath with hot water further inunction is performed. Finally the patient is sprayed with the lotion and garbed in hospital clothing. Next morning, following inspection by the medical officer, and if there are no further signs of nocturnal itching, the patient has a second bath and spray with lotion, dons his own clothing, which has been returned disinfested, and proceeds to duty. He receives strict instructions to report immediately should he experience any further itching. As has been already stated, this rarely occurs. He is also made to listen to a gentle dissertation on the evils of dirty living. The advantages of this rapid method of cure are obvious.

The majority of our cases are detected on entry direct from civil life, but it has been noticed that the incidence of infestation has increased by about 50% since August, probably largely due to living under air-raid conditions. Speedy disinfestation of these cases enables them to mix in close propinquity with patients from other wards in the nightly vigil in the shelters, a dispensation warmly welcomed by the doctors and staff, who must perforce mix with them. In view of the increasing incidence I would wish to support my colleague in recommending this safe, reliable, and rapid method of treatment at this stage of the war, when much can still be done to prevent these wartime contagions from spreading.

I am much indebted to Surgeon Captain E. St. G. S. Goodwin, R.N., for permission to publish these results.—I am, etc.,

J. W. BUCHANAN,
Nov. 25. Surgeon Lieutenant, R.N.V.R.

Treatment of Appendicitis

SIR,—If Mr. John A. Baty (November 16, p. 687) had read the last paragraph of my last letter (November 2, p. 612) with strictly reasonable care he would not have associated my name with Dr. Josiah Oldfield's as an advocate of treatment of appendicitis with castor oil or other purgatives. To avert an attack of appendicitis is a totally different thing from treating it when it has developed to a recognizable stage. When I used the word "timely" I meant it; Dr. Baty ignores it. Moreover, I referred to mothers, who see the cases as a rule long before the doctor does, and are in a position to apply treatment which only in a very small minority of cases could possibly do any harm, and in the large majority would be helpful even if it failed to avert or cut short the attack. What proportion of cases are at their outset in the condition that Dr. Baty describes, and what about the rest? Is emptying the caecum at the outset, even in his cases, really calculated to do any harm? Perhaps once in a blue moon it might precipitate rupture by an hour or so when it is imminent, but how often is it imminent before the nature of the stomach-ache is recognizable? Seldom, if ever.—I am, etc.,

Ambleside, Nov. 16. J. PRICE WILLIAMS.

National Dried Milk

SIR,—The recent letters in your columns regarding national dried milk are timely in drawing attention to the unfortunate effect of standardizing this type of infant food. Though the majority of infants can thrive on (or in spite of) a full-cream dried milk, the range of foods supplied by an infant welfare scheme ought most certainly to include a half-cream milk, a milk with added vitamins and, possibly, iron, and a humanized dried milk. While these latter can be purchased at retail or clinic prices, it must be remembered that a mother, whatever the doctor advises, can demand national dried milk or liquid milk free or at the cheaper rate of the national scheme.

There is, however, a possible solution. Circular 2053 of the Ministry of Health states in paragraph 2 that it is open to a welfare authority "to arrange independently to supplement the provision made under the scheme in cases where such a course appears desirable on medical grounds." This would seem to make it possible for a welfare authority to arrange for the free supply to necessitous cases of the half-cream or other modified or supplemented milks which it provided in peacetime. The cost of this will fall on the authority, but it is not likely to be large in proportion to the general cost of an infant welfare service.

The most serious drawback to the scheme lies in its provisions in respect of liquid milk. In districts such as this, where the greater part of the town's milk supply is from small producer-retailers, whose products are in many cases produced under unreliable, if not dangerous, conditions, it was formerly possible for the clinic medical officer to insist that where milk was supplied free it should come either from a pasteurizing firm or from some producer whose standards were satisfactory. Now he has to stand by and allow a child to be fed, at the community's expense, on a milk which he knows to be at best an exceedingly risky food.

The scheme, in short, has struck a serious blow at the efforts of the public health service to provide a safe milk supply for children, and is actually favouring the slipshod producer as against the careful one, since the latter is spending more to produce a better milk without receiving any better return. Cannot we insist that no producer should be allowed to participate in the scheme unless he is at least complying strictly with all the requirements of the existing milk and dairies legislation?—I am, etc.,

JOHN D. KERSHAW,

Nov. 18 Medical Officer of Health, Accrington.

Government Cheap Milk Scheme

SIR,—In their letter on the above scheme (November 23, p. 722) the chairman and secretary of the Edinburgh Branch of the Children's Nutrition Council ask whether the relatively poor response in Scotland is due to a less advanced co-ordination of the public health services as compared with England. As one who has held the office of medical officer of health in both England and Scotland, and appreciates the important relationship of milk to health, I would advisedly answer the question in the negative. A medical officer's first consideration in advocating milk must be "safety," and I believe this means pasteurized milk, if procurable, with T.T. milk as a second choice. For this reason any scheme which favours the use of non-designated milk will fail to elicit a warm welcome from many.

In this burgh approximately 90% of the milk consumed is now pasteurized, so that the safety factor is relatively high. On inquiry in the initial stages of the scheme I was informed that my help in giving publicity to the scheme was not required, but the local milk officer willingly agreed to my suggestions of co-operation through the maternity and child welfare clinics. So much for co-ordination: but the underlying causes for the poor response must be sought elsewhere. In the first place, insufficient local publicity was given on the inception of the scheme. Secondly, many are apathetic or too lazy to fill in the necessary forms of application; this is most noticeable in the "free" milk section of the community. And, finally, the "reduced price" section have been discouraged (locally at least) by considerable publicity to the effect that the scheme was never intended for those with salaries "of almost four figures." An authoritative and detailed statement in the local press would do much to popularize the scheme, especially at a time when milk is becoming increasingly difficult to obtain.—I am, etc.,

Kirkcaldy, Nov. 25. JAMES R. W. HAY.

Immunized Persons as Diphtheria Carriers

SIR,—My letter on the above subject has been misunderstood by my critics. It was not my intention to discourage immunization. On the contrary, I am a great believer in it myself. The only conclusion I draw from my observation is that while the immunization protects the vaccinated person against contracting the disease, which is most important of all, it does not prevent that person from carrying the germ and spreading the infection. To stop that there is only one remedy—and here I am in full agreement with all my critics—make the vaccination against diphtheria general. Then carriers will not matter so long as there are no susceptible persons. Everybody could carry the germ and nobody would get the infection.

So long as this aim is not achieved, my advice after this experience is that every contact of a case should be swabbed whether he has been previously immunized or not.—I am, etc.,

Spennymoor, Nov. 30. E. BRAUER.

"Egyptian Tummy"

SIR,—I have chosen the above slang medical term, recently used in a B.B.C. broadcast, referring to illnesses likely to affect and actually affecting our troops in the Middle East, because after over twenty years' experience of medical practice in Egypt with Europeans I find the term represents an ignorance, both lay and medical, of the cause of this troublesome condition, resulting, unnecessarily, in improper treatment and in prolonged disability and even disasters. In a book published after long study of the climate of Egypt[1] I have shown the actual cause of the condition.

Briefly, "Egyptian tummy" is not a specific abdominal disease like typhoid fever or dysentery. It is caused by a hot dry climate with a low relative humidity, and only persons who are not accustomed to such climatic conditions are affected; natives seldom are. It is not only found in Egypt, but occurs in other places with similar climatic conditions. The European taking exercise in Egypt perspires very freely, and so dry is the air that enormous quantities of perspiration are rapidly taken up from the body surface, thereby abstracting heat from the body suddenly. The heat-regulating centres cannot compensate for the shock, and severe disturbances result, being produced mechanically, especially in organs situated beneath the perspiring surface. Thus, in the case of the abdomen the intestines are severely

[1] *The Meteorology of Egypt and its Influence on Disease* (p. 70).

chilled, and a few hours later there is severe diarrhoea, often with the passage of mucus and blood, and pain due to the peristalsis.

Other organs may be affected. For example, a woman with marked anaemia, complaining of a slight attack of this enteritis, was found to have a spleen three or four times the normal size. Inquiry showed she had not been exposed to malaria in the usual foreign countries causing this trouble, but had toured Italy and had been once or twice in the evenings to sketch the Temple of Paestum. There she had contracted malaria, which had been overlooked, causing the chronic spleen and anaemia, and the chill giving rise to the enteritis had now caused the greatly engorged spleen. Short treatment cleared up both conditions completely. A few cases of cystitis occasionally so develop. One patient, a doctor, came to Assuan for nephritis and was doing well. He played tennis, became hot and perspiring, and sat in the cool wind on a slatted seat. The next day the albuminuria was doubled.

All these cases can be prevented; to do so the rapid evaporation from the skin, especially of the abdomen, must be delayed. The patient should keep out of the wind, put on extra underclothing, and if lying down on a bed should be covered with a blanket. He must cool down slowly *in the sun*, thus supplying the heat necessary for evaporation, and not in the shade.

If, however, a case does occur, the patient should go to bed; a small Turkey towel should be fastened round the abdomen; he should be given a mixture of sod. bicarb. grains xv, bismuth carb. grains xx, and tr. opii miv, every four hours; and should be placed on a diet of arrowroot and milk, chicken broth, and custard pudding. He will be better in three to four days, and slowly come back to reduced drugs and normal diet. If the trouble does not clear up a sea voyage or removal to a climate free from the extreme dryness of Egypt is advisable.—I am, etc.,

Bexhill, Nov. 7. LEIGH CANNEY.

Surgery of the Nasal Sinus

SIR,—Once again I write to you to protest against views expressed in your *Journal* about the conservative against the radical treatment of infections of the maxillary sinus. It is some time since I wrote to you last, and as we do not, owing to the war, get all the copies of the *Journal*, I have not been able to follow all the statements made. In the *Journal* of August 10 (p. 198) there is an annotation on surgery of the nasal sinus. Proetz and others have been called upon to support conservative surgery. I am sending a copy of this letter to Dr. Proetz, lest my copy to you goes to the bottom of the sea.

First Proetz has pleaded for conservative *non-operative* treatment, with which most rhinologists will heartily agree where the sinus disease is of nasal origin and particularly of catarrhal origin. In young adults and in children the replacement and posturing carried out by Proetz give excellent results, but during quiescence any nasal obstruction must be removed to ensure good aeration and drainage. Occasionally the secretion may be too viscid and heavy to be got rid of even by Proetz's method; a puncture wash-out will get rid of this and restore the ciliary function. The intranasal operation on the antrum is always a blind operation, and blind operations are always bad, and worse when a portion of the anterior end of the inferior turbinal is removed. I once heard a well-known London specialist say: "The man who removes a part of the inferior turbinal (except in cases of fringes and disease, such as bleeding polyps or cancer) should be strung up to the nearest lamp-post." He was right, as the anterior ends of the inferior turbinals protect the respiratory tract by warming and moistening the air and catching dust and bacteria.

If it is necessary to open an antrum the interior should be capable of complete inspection. This is rarely, if ever, necessary in catarrhal infections. But where there is purulent infection with ulceration and involvement of the mucoperiosteum the cavity should be opened in such a manner as to expose every corner of the antrum, particularly the floor overlying the teeth and the area in the neighbourhood of the ostium (or ostia). As most of these cases are dental in origin and not nasal the intranasal approach appears faulty. Hempstead's cases might easily have been cured without operation by the combination of Proetz's method and puncture wash-out, followed by resection of the septum where the ethmoidal plate is obstructing the infundibulum, or even by infraction of the middle turbinal or its partial removal.

Your article again states that removal of the lining mucoperiosteum causes scarring (and loss of cilia). This ignores Mygind's finding that the lining is completely restored and that the cilia resume their normal function. The Caldwell-Luc operation is not a formidable one, and certainly gives excellent results when performed for purulent sinusitis and in atrophic rhinitis, where the cilia are lost. It should be pointed out that Mygind and many others have shown that, despite the inferior naso-antral opening, the cilia will ignore the opening and carry the normal secretions to the natural ostium. Frankly, I think the intranasal operation on the antrum is a bad procedure, and that most of the cases of maxillary sinusitis will recover without any operation; but in real purulent infections the very simple Caldwell-Luc will give better results and leave the surgeon in a happier frame of mind. It may be noted that the shedding off of the endometrium right down to the muscle is followed by complete restoration without any scarring.—I am, etc.,

Christchurch, New Zealand, Oct. 4. T. A. MACGIBBON.

Adrenaline in Asthma

SIR,—The communication on adrenaline in asthma of Dr. G. Krasner (November 16, p. 684) recalled some facts observed in the treatment of a case of asthma. The patient, an elderly widow of 72 years of age, was first attended by me in May, 1939. She had marked dyspnoea on exertion and slight oedema of the lower extremities, a condition indicative of myocardial inefficiency. Her condition deteriorated. Unabating bronchospasm supervened. Her blood pressure remained normal, and no evidence of valvular lesion could be elicited. She became acutely distressed, and so did her relatives. A consultant, himself an authority on asthma, confirmed the diagnosis. He advised the immediate administration of adrenaline hypodermically until relief was obtained. Adrenaline was injected slowly and intermittently up to a total dosage of 40 minims. At this point it had to be suspended owing to collapse of the patient. Incidentally the bronchospasm remained unrelieved.

Sleep was craved for by the patient, and pressed for by sympathetic relatives. Against advice I gave morphine. The rest and sleep procured outweighed the contraindications. Morphine was repeated in progressively smaller doses on succeeding nights for about a week only, in conjunction with 10 minims of adrenaline. During the daytime ephedrine was given when necessary, together with a strong expectorant mixture. The patient's condition improved, the oedema subsided, and the bronchospasm became less frequent and severe. Within a month she was up and about.

The patient's previous medical history was exceptionally good. While I was first examining her she expressed the hope that her complaint was not asthma. This at once suggested some inherent anxiety. I ascertained that her father had died of asthma, and that one of her daughters had suffered from the complaint. Afterwards, in conversation with her, I was careful to substitute the word "spasm" for the word "asthma." This advice I passed on to those in immediate attendance, with the result that the patient was often found to repeat, "I am glad it's only a spasm, and not asthma."

Some points of interest arise in connexion with this case: (*a*) The unusually late onset of the complaint. (*b*) The primary dyspnoea was probably a conditioning factor. It would at once become associated with the pre-conscious fear, and this in turn would tend to precipitate bronchospasm as a compromise formation and symptom. (*c*) The initial ineffectiveness of adrenaline would be due to the underlying cardiac inefficiency. (*d*) Morphine secured the rest essential to cardiac recovery, in addition to aiding the relief of mental distress and bronchospasm. (*e*) Direct suggestion to the patient (and to the attendants) mitigated the anxiety factor by enabling her to assimilate and diffuse it in her conscious personality. (*f*) Morphine was easily discontinued without residual craving. (*g*) Transference of affect to the physician was replaced by

self-reliance. This was partially effected by introducing the patient to the self-administration of adrenaline by the inhalation method.

The patient had no further recurrence until last summer, when a milder attack was quickly resolved on the above-mentioned lines.—I am, etc.,

Birmingham, Nov. 16. A. W. DOCKAR.

Pathogenesis of Non-pulmonary Tuberculosis

SIR,—The clinical manifestations of tuberculosis of the lymphatic glands and the tuberculous lesions of haematogenous origin, so carefully described by Dr. M. C. Wilkinson (November 16, p. 660), are highly valuable and in accord with my very limited experience as chief tuberculosis officer of Fulham (1917–18). Dr. Wilkinson rightly suggests that "patients who have had a heavy glandular affection are protected from haematogenous forms of tuberculosis in adult life."

May I be permitted to mention a very remarkable case, which was published in the *Lancet* in 1888 and quite recently also in my work. A young woman aged 23, whose parents and a brother died from consumption, became very weak, anaemic, and dyspeptic, and for months continued so, until August, 1886, when tuberculous infiltration of the right cervical glands began and was severe enough to confine her to bed. Examination of the lungs at this time revealed nothing very definite. This went on for months, and large quantities of tuberculous pus were abstracted from the neck from time to time. About Christmas an intense inflammation attacked the great joint of the thumb of the right hand, leading to pus-discharging sinuses. This continued for two months, when the symptoms and signs of phthisis pulmonalis were developed, with a temperature of 102°–104°. There were the signs of a vomica in the left apex, and moist rales were audible in the right apex in the month of May. About this time the glandular and joint discharges had ceased, and she began to eat more heartily and to gain flesh. An examination of the sputum had revealed that "it contained the tubercle bacillus in considerable abundance." She improved rapidly, and by October was practically well; menstruation had returned and the cough had vanished.

My comment at the time was that "the virulence of the poison became successively attenuated relatively to the tissues from a modification in the constitution of their bioplasm; the first two outbursts thus representing to a certain extent protective inoculations. This harmonizes with the view that the exciting cause of phthisis is the micro-organism discovered by Koch." It was about that time that Koch made his discovery.—I am, etc.,

Nov. 16. A. G. AULD.

Sun-spot Periodicities and Biological Cycles

SIR,—Confirmation of my suggestion in the *Journal* of September 7 (p. 339) that a minor periodicity in the sun-spot activity might be related to the influenza–cancer periodicity has been afforded by analyses of: (1) Schuster,[1] all of whose eight "probable periods" are multiples of the thirty-three week cancer period (or of half-periods); and (2) Alter,[2] whose study of "short-period sun-spot cycles" shows a cycle of about eight months—that is, about thirty-three weeks.

Further study of minimal cycles, with kind advice from the Astronomer Royal, Mr. H. Spencer Jones, has shown that on charting out the daily sun-spot numbers (as given by Chapman and Bartels[3]) both the peaks and onsets of rises almost invariably fall into cycles of a half-week, week, or multiples; many three-weekly periods are evident, and some of four weeks. For example, peaks of rises from July to November, 1915, show five successive three-weekly cycles. This was a rising-activity year. The study of years of minimal activity such as 1890 and 1914 shows that long intervals of inactivity are broken by rises at similar periods of a week (or half-week) and multiples.

The menstrual cycle (human and in the domestic animals) is usually seen at periods of two, three, or four weeks. Popularly supposed to be due in women to lunar activity, there is little or no scientific basis for this opinion. Consideration of the length of animal cycles suggests that the menstrual period is more likely to be due to the solar rotation period or to subdivisions of this. The Pel-Ebstein type of Hodgkin's disease has usually a three-weekly cycle; and the reactions of patients to diketal injections are also frequently seen in three-weekly cycles (which may be observed for a year or more occasionally) or rarely in four-weekly cycles, while weekly and half-weekly reactions are common (these are discussed in my book[4]).

It is therefore suggested that the menstrual and certain other biological cycles due to chemical or virus activities may have as a physical basis the minimal sun-spot cycles.—I am, etc.,

London, W.1, Nov. 16. J. H. DOUGLAS WEBSTER.

[1] Schuster, A., *Trans. roy. Soc.*, A, 1906, 141.
[2] Alter, D., *Monthly Weather Review*, 1938, **66**, 208.
[3] Chapman, S., and Bartels, J., *Geomagnetism*, 1940, Oxford, Vol. II.

Restrictions on Physiotherapy Apparatus

SIR,—Surgeon Lieut. P. H. Dalgleish (November 23, p. 723) writes in reply to my letter on the above subject, but appears to have misinterpreted my statement on the analogy between the present state of physiotherapeutic treatment and the past state of ultra-violet therapy. I do not attempt to belittle ultra-violet therapy as a form of treatment, but have always felt that this form of therapy in skilled hands and when applied in appropriate conditions is of considerable value. What I did mean to infer in a short limited space was that there might be a danger of physiotherapeutic treatment passing into the realms of popular medicine, advertised to all and sundry in the lay press. Such publicity was largely responsible for the disappointing results of ultra-violet therapy when used indiscriminately for all ailments.

I shall be extremely interested in the results of the ultra-violet lamp in the Naval unit to which Dr. Dalgleish refers. That the rate of sickness should be lowered by approximately 30% due to ultra-violet therapy certainly commends this form of treatment when used in skilled hands.—I am, etc.,

Hull, Nov. 23. J. E. BANNEN.

Large Pupils and Disease of Lymphoid Tissue

SIR,—Dr. F. C. Eve's letter on the value of the lymphoid tissue of the tonsil (November 16, p. 685) as an agent of defence in the animal economy induces me to draw attention to an observation of mine on the relation of large pupils in patients who are subject to diseases of the lymphoid tissue, particularly appendicitis, enteric fever, and tonsillitis. During the last thirty years nothing in my experience has arisen to disturb that belief. Sir William Jenner noticed that patients suffering from enteric fever had large pupils compared with the small pupils in cases of typhus fever. I should be glad if anyone in a fever hospital could say whether the large pupil in enteric fever persists after the fever is gone, as I suspect the pupil was large before the fever and would be large after the fever was gone.

The special function of the lymphoid tissue through the body, including the spleen, does not appear to be yet unravelled. Incidentally, I understand that the pig is well armed with lymphoid tissue in its throat, and it must in the course of one day dispose of an incredible multitude of microbic life. Erichsen in his great work on surgery stated that a tissue or organ in full activity was more liable to disease than one in a state of repose. Does this law of Erichsen's explain how appendicitis, enteric fever, etc., are more prevalent before the age of 30? Conversely, Sir William Jenner stated that the spleen definitely wastes at the age of 50, and, I presume, other lymphoid tissues throughout the body. Does this wasting account, partly at least, for the prevalence of cancer in the later half of life?

Cancer of the spleen is a very rare disease. I have never diagnosed a case, nor have I met any doctor who has done so. Yet cancer of the liver is not uncommon, and runs a rapid course. Now the spleen is rich in lymphoid tissue, and would seem to possess great phagocytic power. Coats, the eminent pathologist of Glasgow, states in his splendid *Manual of Pathology* (p. 530, fourth edition) that "tumours proper of the spleen are rare." . . . "Sarcomas occur secondarily in the spleen with greater frequency than any primary tumour."

[4] Webster, J. H. D., *Periodicity and Cause of Cancer*, 1940, p. 146.

. . . "Secondary cancers are very rare, even where a generalization of the cancer has occurred by the blood," showing conclusively the power of the spleen in resisting cancer germs.

To crown Coats's observations we have the observations of his distinguished successor, Prof. Muir, in his standard textbook, that microscopical deposits of cancer can be discovered in the spleen which apparently are disposed of by phagocytic action. I may add that when cancer attacks people with the "lymphoid diathesis" it takes the form of sarcoma, and, like the other diseases mentioned, is most frequent in the early part of life. I conclude by stating that I am aware that oculists associate myopia with large pupils, but the remarks above have no reference to such cases.—I am, etc.,

Dornoch, Nov. 20. J. T. MACLACHLAN.

Respirator as Oxygen Apparatus

SIR,—I was much interested in the account of the use of the civilian type of respirator for the administration of oxygen given by Major H. L. Marriott (October 19, p. 519), particularly so in his remarks that the Service respirator is not so suitable for his method, because it was the Service type of respirator which we used for this purpose more than eighteen months ago. The occasion was when the chaplain in our ship at sea developed an attack of acute left-sided pleurisy with effusion; his distress was considerable in spite of local measures taken to counter the pain.

All ships carry a "novox" resuscitation outfit, supplied for giving oxygen with 5% CO_2 to men rescued from drowning. It was found that the rubber hosing of the gas mask was of the same calibre as that used in the novox resuscitation outfit, and that the valve and meter of the novox apparatus would fit on to the oxygen cylinders supplied to the engineers for oxyacetylene welding, etc. Therefore the wired-on rubber hosing of the padre's gas mask was detached from the container and fixed on to a large-sized oxygen cylinder borrowed from the engineer. Oxygen was supplied to the patient by this method and the flow regulated by the meter, and his improvement was so great that two days later we had no qualms for him when we heard the ship was going to be taken through a gas cloud to test the anti-gas defences. Our patient came through this ordeal too with flying colours, and was the most comfortable person in the ship during the test.

Major Marriott's suggestion will have more general application among civilian personnel and has the merit of dispensing with a flowmeter, but in ships in wartime when a flowmeter is provided and perhaps football bladders are hard to obtain, and in any case would not fit on to the Service container readily, the alternative method outlined above merits a trial.—I am, etc.,

P. L. GIBSON,
Nov. 11. Surgeon Captain, R.N.

Effect of Urethral Obstruction on Kidney

SIR,—While one hesitates to criticize the observations of a colleague (Dr. G. S. Aston, November 23, p. 722), one prefers to stand in defence of the accepted view regarding the mechanical back-pressure effects of obstruction in the urethra. Changes in the urinary tract due to obstruction in the urethra are first seen in the bladder, in which there occurs a general thickening of all the muscular coats. Thus the bladder is seeking to overcome the urethral obstruction by a compensatory hypertrophy, which enables it to exert the increased force necessary to expel the urine. After some time the bladder begins to dilate, and in an untreated case the balance between obstruction and hypertrophy breaks down and complete atony ensues. The muscular coat atrophies and the capacity of the organ may increase to three or four pints, its walls thinning out.

In ordinary circumstances no regurgitation of fluid and therefore no direct transmission of pressure from the hypertrophied bladder are possible owing to the valvular arrangement of the ureteric openings. The changes which occur in the ureter and renal pelvis are produced entirely by the secreting pressure of the kidney working against an obstructed ureteric outlet. It is owing to the oblique course of the terminal three-quarters of an inch of the ureter through the wall of the bladder that any thickening and spasmodic contraction of the vesical musculature interfere with the free escape of urine. Moreover, the greater the distension of the bladder with fluid under pressure the more are the walls of the intramural portion of the ureter pressed together and its lumen occluded.

As a result of the collection of urine in the ureter from the kidney the musculature of the ureter hypertrophies, and this is followed in turn by a breakdown in compensation, and the ureters become dilated. With these changes the renal pelvis undergoes dilatation, and should the condition continue for a prolonged period hydronephrosis results.

That these, the accepted views, are held in part by the correspondent is only incidental, but one can find no evidence that there is a popular belief that the back pressure extends up the ureters directly from the bladder to the kidney.—I am, etc.,

Glasgow, Nov. 23. T. H. CRAWFORD BARCLAY.

Heparin in Subacute Bacterial Endocarditis

SIR,—I read with great interest the article by Drs. G. C. Dockeray and E. Kawerau on heparin in a fatal case of subacute bacterial endocarditis (November 23, p. 703). The results of Kelson and Paul White[1] were no more than moderately encouraging, while the one case treated with heparinization only by Friedman, Hamburger, and Katz[2] proved fatal. Witts[3] and Fletcher[4] had no better results, while Petch[5] found that of four cases treated three died, while one has remained well for six months. On the cases so far published there seems to be more hope in further chemotherapeutic developments than in heparin as an adjunct.—I am, etc.,

G. E. DONOVAN,
Public Health Department,
Nov. 23. Gorseinon, Swansea.

Euthanasia

SIR,—There must be a considerable number of medical men who are deeply interested in the subject of euthanasia, so ably supported by Dr. F. Parkes Weber (November 30, p. 766), and many of them have probably experienced the distress of standing helpless by a patient's bedside under the conditions described by him. Personally I should regard an "abridgment of the pangs of death" (as Lecky has it), properly controlled, as a kindly and Christian act, and as Ecclesiastes is accepted as a portion of the Bible I should quote ch. iii, v. 1–3, in support of this view: "To everything there is a season and a time for every purpose . . . a time to kill, and a time to heal."—I am, etc.,

London, W.1, Dec. 2. JAMES R. WHITWELL.

General Analgesia

SIR,—It seems that the term "general analgesia" is accepted now in the nomenclature used by British anaesthetists. In the booklet supplied by a well-known firm of anaesthetic appliance makers this variety of anaesthesia is fully described. The glowing account given there makes fine reading, but it has little or no foundation in fact.

Local analgesia—the loss of sensibility to painful stimuli without loss of consciousness—is something very real, but how real is general analgesia? According to Guedel's classification general analgesia is the first stage of general anaesthesia, the second stage being that of delirium. In the usual British classification the first stage corresponds to Stages 1 and 2 of Guedel. In actual practice the anaesthetist must produce in the patient that stage of general anaesthesia where there is loss of function of the cerebral sensory centres while the patient is conscious. The reflexes are unaffected and pain is the index.

It seems to me that for all surgical purposes general analgesia is a delusion. The good work recorded as being done under general analgesia has been done either under a deeper level of general anaesthesia or under hypnosis.—I am, etc.,

Blackpool, Nov. 24. J. MCAULEY.

[1] *J. Amer. med. Ass.*, 1939, **113**, 1700.
[2] Ibid., 1702.
[3] *British Medical Journal*, 1940, **1**, 484.
[4] *Lancet*, 1940, **2**, 512.
[5] Ibid., 637.

Medicine: The World's Physician

SIR,—Recent correspondence in the *Journal* on doctors and civilization (November 2, p. 614) and our unused influence (October 12, p. 507; November 2, p. 614; and November 9, p. 648) indicates that there is a growing consciousness in the medical profession of our responsibility for more than the physical condition of patients and potential patients. Our opportunity of influence in society is probably greater than that of any other body. The many excellent measures already taken to ease man's lot and prevent sickness can be implemented by practical means to attack the origin of the world's maladies. The scientific approach we now employ in diagnosis and treatment can be applied to this purpose.

Is not the real trouble with the world the eternal problem of human nature, where selfishness, greed, resentment, and jealousy make individuals and nations behave in a way which is anti-social? To attack the cause is the rational procedure, and the medical profession can show the way. Do we know how to do so? If so, can the technique be taught in our medical schools? The reply will be that this is outside the scope of medicine. Yet it is well known that such negative forces as fear, greed, resentment, and jealousy, through the sympathetic system and the endocrines, influence the whole of the body and result in mental or physical ill-health. If these forces were successfully treated in individuals, would not the whole moral climate of nations be affected? For it is these forces that produce universal unrest. Who is in a better position to do this than the medical practitioner? How can he become better equipped for the task?

In my own practice I have seen sufficient evidence to convince me that change in personality is a potent factor in creating a new world order. Individuals once dominated by fear, selfishness, duplicity, hate, irresponsibility, or laziness become fear-free, selfless, truthful, constructive, and disciplined, with corresponding improvement in health. Investigation into human nature and personality change would be a fruitful field for research. It would provide the practitioner with the means of preventing and treating the origin of much ill-health as well as social unrest. Such research would thus provide a remedy for a sick world, which the medical profession is in a position to apply.—I am, etc.,

St. Albans, Nov. 15. E. E. CLAXTON.

A Plea for Action

SIR,—Dr. Margaret Lowenfeld (November 30, p. 762) has written the most able letter on our war difficulties which has appeared in the medical press. Will she lead the way? Many will follow.—I am, etc.,

New Barnet, Nov. 30. JOHN ELAM.

Medical Defence of Assistants and Locumtenents

SIR,—The council of the Medical Defence Union has just approved an important modification of policy to become operative on January 1, 1941, whereby it will not be practicable in future for principals to protect themselves from actual or threatened litigation against them in person arising out of the alleged acts or omissions of their named assistants who are not members of a defence organization on their own account.

In the past the Union accepted this liability where the principals who were already members named their assistants and paid an additional subscription of 10s. per annum. It is now deemed necessary and desirable that all assistants and locumtenents should be members of a recognized medical defence organization to acquire full protection on their own behalf as well as joint protection with their employers, provided the employers themselves are members of a reciprocal defence body. Principals should immediately inquire of their assistants whether they are at present members of a medical defence organization and in benefit, and, if not, they should insist upon the production of evidence of membership at an early date. It is only by taking a precaution of this nature that principals can be protected adequately against the ever-growing litigiousness of patients, private and hospital alike, and of their relatives who are justifiably or unjustifiably dissatisfied with the professional advice or treatment received.—I am, etc.,

Edgware, Nov. 28. ROBERT FORBES, Secretary, Medical Defence Union.

THIRD ADDENDUM TO THE "B.P."

The General Medical Council will publish shortly a Third Addendum to the *British Pharmacopoeia,* 1932, in which certain new monographs and certain modifications of existing monographs will be included. Under normal conditions when a new *Pharmacopoeia,* or an Addendum to a *Pharmacopoeia,* has been ready for publication it has been customary to give facilities for advance copies to be inspected, during the three months immediately preceding publication, by medical practitioners, pharmacists, analysts, manufacturers, and others who may be interested. The Third Addendum to the *British Pharmacopoeia,* 1932, like the Second Addendum which was published in June, 1940 (pre-publication announcement, *Journal,* May 25, p. 859), has been prepared to deal with conditions arising from the present emergency, and it is expedient that it should be published and thus made official without delay. It is not possible, therefore, to provide for the preliminary inspection of the completed Addendum, but arrangements have been made for a limited number of advance proofs to be available for supply, on application, to manufacturers of the preparations described therein. The following new monographs will be included, together with relevant appendices:

Alcohol Tribromoethylicum	Iodoxylum
Amyleni Hydras	Leptazolum
Aneurinae Hydrochloridum	Mepacrinae Hydrochloridum
Bromethol	Mepacrinae Methanosulphonas
Carbacholum	Nikethamidum
Chloroscresol	Pasta Acidi Tannici
Hexobarbitonum	Phemitonum
Hexobarbitonum Solubile	Stibophenum
Injectio Leptazoli	

The Addendum will contain, in addition, emendations to the following monographs of the *British Pharmacopoeia,* 1932, which became official by virtue of notices in the London, Edinburgh, Belfast, and Dublin *Gazettes* of July 5, 1940:

Emplastrum Plumbi	Ipecacuanha
Injectio Hydrargyri	Unguentum Hydrargyri
Injectio Hydrargyri Subchloridi	Nitratis Forte

It will also contain emendations to the following monographs, which will become official on the date of publication of the Third Addendum:

Atropinae Sulphas	Sapo Mollis
Injectio Bismuthi Salicylatis	Unguentum Hydrargyri
Sapo Durus	

It must be understood that no additional monograph, or emendation of a monograph, is official until the Third Addendum has been published. Manufacturers interested in the production of the articles named in the foregoing lists are invited to apply to the Secretary, British Pharmacopoeia Commission, 44, Hallam Street, London, W.1, for advance copies of the monographs.

All employed members of the Civil Nursing Reserve, other than members of the British Red Cross Society or the St. John Ambulance Brigade, are to be issued free with an outdoor uniform consisting of a waterproofed coat with separate fleece lining and a felt hat. Bootees for wearing over outdoor shoes are to be issued free to all nurses, whether members of the Civil Nursing Reserve or not, who are billeted not less than a quarter of a mile from their hospitals.

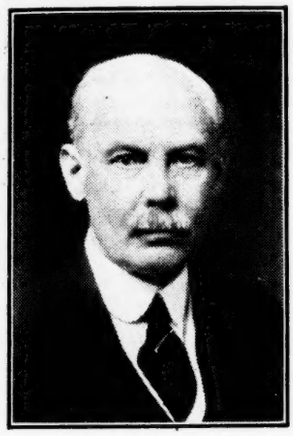
Obituary

THOMAS SINCLAIR, C.B., M.D., F.R.C.S., M.P.

Emeritus Professor of Surgery, Queen's University of Belfast; Consulting Surgeon, Royal Victoria Hospital, Belfast, etc.

The death of Colonel Thomas Sinclair, Emeritus Professor of Surgery in the Queen's University of Belfast and its representative until a month ago in the Imperial Parliament, will awaken memories in Belfast graduates, young and old. He was the second son in a large family, of whom seven grew to adult life. His father, Samuel Sinclair, was a flax merchant in Belfast and a respected and prosperous citizen.

Thomas Sinclair was born in 1857. He forsook a business career for medicine, and entered Queen's College, Belfast, in 1877, where he graduated M.D., M.Ch. with first-class honours and a gold medal in the Queen's University of Ireland in 1881, taking the M.R.C.S.Eng. the following year and the F.R.C.S. in 1886. In the interval he studied at the London Hospital, at Berlin, and Vienna. He also acted as demonstrator in anatomy in Belfast. His first appointment was to the Ulster Hospital for Children and Women, but soon he was elected assistant surgeon at the old Royal Hospital, the forerunner of the Royal Victoria Hospital, Belfast. In 1886, on the resignation of Professor Alexander Gordon, he became Professor of Surgery at Queen's College when still under 29 years of age. His appointment, we are told, occasioned some heartburning, and was generally attributed to the influence of Peter Redfern, M.D., F.R.C.S., at that time Professor of Anatomy and Physiology. Redfern had a great reputation as a diagnostician of "talent," and in this case he was speedily justified, for in a short time it was evident that a new influence had arisen in surgery, not only in the Belfast medical school but in the province. Prof. Sinclair held the chair till he retired under the age rule in 1923. For the long period of thirty-seven years he presided over the systematic and clinical teaching of surgery, and during that period over 2,000 students received from him their introduction to the subject. The position of surgery in Northern Ireland to-day is sufficient testimonial to the foundations laid by him. When he was senior surgeon to the hospital he had a unique experience. Every member of the surgical staff and the surgical specialties had been his pupils; in fact, every member of the staff but one had been taught by him. His contributions to the literature, while few, were important. Without doubt his devotion to his teaching, hospital work, and large practice left him with scant time for literary work. He was first and foremost a teacher, clinician, and operator, and he allowed nothing to interfere with his academic and hospital duties. The ideal surgeon has been described as "a physician who can operate," and judged by this criterion Sinclair deserves to rank with the best men who have practised our art. He was meticulous in inculcating thorough clinical examination and the necessity for painstaking post-operative care, while the example he set of operative technique was irreproachable. His dexterity was proverbial, and a more capable or gentle pair of hands could not be imagined.



During the war of 1914–18 he acted as consulting surgeon to the 4th Army, B.E.F., with the rank of colonel, A.M.S. For his services he received the C.B. In the early years of the century he was examiner in surgery for commissions in the R.A.M.C. Never a robust man, it was remarkable how much he accomplished. At one time of his life he hunted regularly. Later he played golf and was an expert angler.

In 1923, when he became Professor Emeritus, Sinclair resigned from the active staff of the Royal Victoria Infirmary and became consulting surgeon. He also relinquished private practice. Released from routine he employed himself busily and pleasurably in many public duties. He was already a member of the General Medical Council, and represented the University in this capacity till 1927, when he became a Crown nominee. He served his native province as a Senator in the Parliament of Northern Ireland, and on Sir William Whitla's resignation in 1923 Prof. Sinclair was elected to succeed him as Parliamentary representative of the University at Westminster. He held the seat till his health failed this autumn. He had the distinction of being returned unopposed during the seventeen years he represented the constituency. University affairs afforded him much interest. He was a member of Senate and Registrar for many years. In 1931 he became Pro-Chancellor. He contributed generously to the University, to the Royal Victoria and the Royal Maternity Hospitals. He had been president of the Ulster Medical Society in 1895–6, and had been a member of the British Medical Association for fifty-four years. When the Association held its Annual Meeting at Belfast in 1884 he acted as Secretary of the Section of Physiology and Pathology, and at the next Belfast Meeting of the Association in 1909 he held office as President of the Section of Surgery.

Prof. Sinclair was more than a figure in Northern Ireland. He represented an epoch in the evolution of surgery and its teaching. He outlived all his contemporaries in the school and some of his earlier students. Students of his middle period of activity as a teacher are now elderly men and those of his later years have attained respectable seniority, but it was never his fate to be forgotten or neglected. By nature the most retiring of men, he was always a welcome figure at any gathering, medical or otherwise, where Queen's men congregated. He could himself, when called upon, make a happy and witty after-dinner speech. He had a most remarkable gift of phrase, and to him "le mot juste" came with absolute spontaneity. The annual hospital staff dinner and the functions of the Queen's University Club in London, of which he had been president, he seldom missed. Always well groomed and well dressed, he was a notable figure, and, although dignified, there was a disarming kindliness which endeared him and won him affection as well as respect. In a long acquaintanceship as student, house-surgeon, and later as hospital, University, and Medical Council colleague, the writer of this memoir never saw him out of temper or impatient with a nurse, student, resident, or patient. He could be stern when necessary, but unjust never. A great teacher and surgeon, a wise administrator and prudent counseller, his unique combination of qualities is difficult to describe without seeming exaggeration. He was, in the truest sense of the word, a great gentleman. It was a privilege to have known and worked with him at the zenith of his powers, and an honour to have enjoyed his friendship.

Prof. Sinclair was unmarried, and lived a quiet and happy life with a devoted younger sister, who survives him. To her, his loving and inseparable companion, the sympathy of their many friends is extended. He took a justifiable pride in his nephews and nieces. Several of

the former served in the war of 1914–18, two giving their lives. One is a member of the House of Commons, Northern Ireland, and another holds the Chair of Greek in the Queen's University of Belfast.

His funeral, which took place on November 27, was attended by a large and representative gathering, among whom were: Commander O. Henderson, D.S.O., R.N., representing the Governor of Northern Ireland, the Right Hon. J. M. Andrews, Prime Minister of Northern Ireland, the Right Hon. the Lord Mayor, Sir Crawford McCullagh, Bt., the Chancellor of the University, the Marquis of Londonderry, the Right Hon. the Lord Chief Justice, Pro-Chancellor, the Vice-Chancellor, Mr. D. Lindsay Keir, and the Right Rev. Dr. J. B. Woodburn, Moderator of the General Assembly. Many members of the Senate and staff also attended.

[The photograph reproduced is by Russell, London.]

R. MAITLAND BEATH, M.B., B.CH., B.A.O., F.F.R.

Honorary Radiologist, Royal Victoria Hospital, Belfast

We regret to record the death of Dr. R. Maitland Beath at his home in Belfast on November 21 after a short illness. A few weeks ago he was in his usual good health, but within a brief period he developed serious symptoms which indicated an inevitably fatal outcome. His death at the age of 54 has come as a shock to all who knew him.

Robert Maitland Beath was a student of Queen's University, Belfast, first in the Faculty of Arts, where he obtained a B.A. in 1907 in the Royal University of Ireland. He then entered the Faculty of Medicine, where he proved a brilliant student, and graduated M.B., B.Ch. in 1914 with first place and first-class honours. He subsequently obtained the M.B., B.S. of London. He was an enthusiastic member of the Queen's University O.T.C. and consequently joined the R.A.M.C. (S.R.). On the outbreak of war in 1914 he was called up and proceeded to France, where he had varied experiences as battalion medical officer, on an ambulance train, and eventually as a radiologist in a C.C.S.; later he served on a hospital ship in the Middle East, and was demobilized in 1919 with the rank of major. As a result of his war service he gained valuable experience in radiology, and on his return to Belfast he began practice in this specialty and soon became an authority on his subject. For over fifteen years he served on the staff of the Royal Victoria Hospital as radiologist, and he was also attached to the Belfast Union Infirmary, in addition to acting as consultant radiologist to several hospitals in and around Belfast. On the institution of the Belfast Dental School he was appointed lecturer in dental radiology at Queen's University.

Maitland Beath was a member of the British Medical Association and acted as vice-president of the Section of Radiology when the Association met at Belfast in 1937. At this meeting he was also chairman of the Belfast Division and chairman of the Dinner Committee. He undertook the heavy responsibility of chairmanship of the Northern Ireland Medical War Committee, and every decision he made was accepted because it was known that he was influenced by neither prejudice nor favouritism. He was a Fellow of the Ulster Medical Society and one-time honorary secretary of the Society. For many years he was a member of council of the British Institute of Radiology. He played a prominent part in the foundation of the Faculty of Radiologists, a purely medical body with the improvement and teaching of radiology as its principal concern; in 1938 the Faculty elected him as president at its meeting in Belfast. He was also a vice-president of the Radiological Society of Ireland. It is a tribute to his versatility that all these activities were carried through successfully and with great efficiency. His quiet assurance, combined with a logical mind and undoubted administrative ability, marked him as one whose services would be sought on many occasions. Many demands were made upon his time and ability in his membership of important committees in connexion with hospital, University, and medical affairs. While his interests covered a wide field, he never accepted a position in which he did not feel he could make a worthy contribution. He was a man of deep and definite convictions, and his discernment and sense of justice were of great value in guiding a committee through troublesome negotiations. His colleagues on the hospital staffs, in the University, on hospital boards of management, in Freemasonry, and in the affairs of the British Medical Association, the Ulster Medical Society, and Queen's University Services Club found in him one of their most useful and valued members.

Maitland Beath's interests outside radiology were varied. His experiences in the war of 1914–18 enlisted his support of ex-Servicemen and his help for the Queen's Services Club, of which he was president at the time of his death; hospital committees and appeals found in him and his wife ardent supporters and generous benefactors. He had a quiet and religious temperament and had a genius for friendship.

The medical profession in Northern Ireland and radiologists elsewhere have lost a valued colleague, and his intimate friends a sincere, generous, and beloved companion. In his family life he was peculiarly happy, and our sympathy is extended to Mrs. Beath and her four daughters.

A short religious service was held in Elmwood Presbyterian Church on November 23 in the presence of friends from every walk of life.

Dr. Russell Reynolds writes:

Robert Maitland Beath was a lovable character, and those who knew him well have lost a real friend; by his death British radiology has lost a staunch supporter. By nature he was kindly and sympathetic, and instinctively his help was sought when any knotty problem requiring great tact had to be solved; he was invariably successful and everybody concerned felt happy. He can best be described as a true Irish gentleman. Maitland Beath was a general favourite with his colleagues. In the radiological world he rose to the zenith of his profession and enjoyed a wide reputation. He served as a major R.A.M.C. in the last war at the 18th C.C.S., B.E.F. He was immediate past-president of the British Association of Radiologists and a member of the council of the British Institute of Radiologists, and a vice-president of the Radiological Society of Ireland. In 1937 he represented Ireland as chairman of the delegates to the fifth International Congress of Radiologists at Chicago. His contributions to radiological literature were numerous.

THOMAS SINCLAIR KIRK, M.B., B.CH.

We regret to announce the death on November 10 after a short illness of Dr. Thomas Sinclair Kirk, the well-known Belfast surgeon. He was 71 years of age. Surgeon Kirk—he was the last in Belfast to follow the old Irish custom of title—came of an Armagh family of Keady. He studied medicine at Queen's College and the old hospitals of Belfast, taking his B.A. and M.B., B.Ch. in 1893. After graduating he spent about a year in Egypt, and on his return he attended the Rotunda in Dublin and was for a time registrar. Later he was offered the junior house appointment at the hospital in Frederick Street, Belfast, and in accepting it, under James Colville as his senior, he began his long work in the hospitals of

his home town. For thirty-five years he was a member of the staff of the Royal Victoria Hospital, and was senior surgeon when he retired under the age limit in 1935; he was consulting surgeon to the hospital when he died. He was attached to the Belfast Hospital for Children from his earliest days. He became senior surgeon there in 1897, at the early age of 28, retiring in 1938; he was consulting surgeon at the time of his death. He was also consulting surgeon to the Forster Green Hospital for Tuberculosis and the Smellie Hospital at Larne. He leaves a son, who is serving with the R.A.M.C., and a daughter.

A colleague writes:

It cannot be claimed that Kirk was an easy teacher of the many, at least in his later years, and certainly he was not sought by those who thought that teaching should confine itself to cramming for degrees. But for others he laid bare the foundations of diagnosis, the conceptions of tissue reaction, and the logically developed principles of treatment by which he himself worked. "I use the simple things," he said, "to get at the grounds of it all." He was never a passive receiver of others' views, and at times may have too summarily dismissed others' explanations of the causation and the order of tissue change. But in matters of treatment he was cautious; he tested that which he thought good, and only after fair trial expressed his opinion. He believed that the advances in medicine were the results of experience, and that the experiment of the laboratory must meet its final examination in the observation of its results in the ward. Kirk's own interests in his subject were wide, too wide for the long and critical treatment that specialization now demands; but he was a close observer, and had a wide biological knowledge of structure and function. His conclusions were his own, though he depended much on Symmers in pathology and at times worked with Thompson and Milroy in physiology. It is unfortunate that he did not express himself easily in writing, so that most of his work remains unpublished. There were, for example, his theses that direct fractures and indirect fractures are different conditions, that the effects of shock are best countered by subcutaneous oxygen, that it is possible to use the maximum doses of vaccine at the same time in each of many different lymphatic areas, that many people (42% he said) have a permanent tissue infection, that urea is the natural antiseptic, and that the logical treatment of low forms of infection and chemical imbalance is by normal serum. He has bequeathed to his followers a rich store of ideas for inquiry.

HERBERT BELL TAWSE, M.B., CH.B., F.R.C.S.

Honorary Surgeon to the Throat and Nose Department, General Hospital, Nottingham

We regret to announce the death on November 12 of Mr. H. Bell Tawse after an illness of two weeks' duration.

Mr. Tawse, who was born in Aberdeen in 1878, received his medical education at Aberdeen University, from which, after a distinguished career as a student, he graduated with honours in 1900. After subsequent study at King's College Hospital and the London Hospital he took the F.R.C.S. in 1904, and proceeded to devote himself to the study of laryngology, which was to be his life's work. After an appointment as house-surgeon to the Throat Hospital, Golden Square, he settled in Nottingham, and within a short time was elected honorary assistant surgeon to the Children's Hospital and, later, to the General Hospital. Later still he was appointed honorary surgeon to the throat and nose department, and was discharging the duties of this post up to the beginning of his illness. He was also consulting laryngologist to the Ransom Sanatorium and the Nottingham and Nottinghamshire Education Committees.

In his earlier days Mr. Tawse was for a long time secretary of the Nottingham Medico-Chirurgical Society, one of the oldest medical societies in England, becoming its president in 1925. He did much to further its development and influence; with one or two others he took a leading part in acquiring a fine old town house as its headquarters, which afforded not only an excellent lecture room and library, but also facilities for encouraging social life among the medical profession in Nottingham. Mr. Tawse was well known in laryngological circles throughout the country, and when the British Medical Association met at Nottingham in 1926 he acted as vice-president of the Section of Laryngology and Otology, and at the Aberdeen Meeting of the Association in 1939 he was president of the Section of Oto-Rhino-Laryngology. He had been a member of the British Medical Association for thirty years. He made many contributions to the literature on his specialty. He was a member of the committee appointed by the Board of Education to consider the causes and prevention of enlarged tonsils and adenoids. In 1914 he married Gertrude Mary Goodall, who predeceased him by two years. They had two children, a daughter and a son who is now holding a resident surgical appointment in a London hospital.

A colleague writes:

By the death of Herbert Bell Tawse the profession sustains a severe loss. He has been a notable and outstanding figure in the medical life of Nottingham for many years. Not only as an eminent exponent of his specialty but also as a man of affairs will he be missed. I remember well a remark which was made by a senior member of the hospital staff soon after his arrival in Nottingham: "I am much impressed by such mature judgment in a young man." This quality, coupled with shrewd common sense and a gift for expressing himself simply and directly, ensured that one could expect, and did in fact always receive, a helpful opinion, whether in consultation over a case or in committee; in the matters relating to hospital management his views were always regarded with respect. He was an intense worker, and any project undertaken was pursued with unflagging resolution to its completion. With all this he had a keen and kindly sense of humour, and was never at a loss in repartee. His interests apart from work were in a country life, and especially with rod or gun. He delighted in extending hospitality to his many friends, whether at Wymeswold or in his Aberdeenshire house on the Don. They will long remember the thoughtfulness and kindness of a perfect host.

THE HON. SIR STANLEY ARGYLE, M.B., M.R.C.S.

We regret to announce the death at the age of 72, on November 23, of the Hon. Sir Stanley Seymour Argyle of Melbourne. Sir Stanley Argyle was born on December 4, 1867, the third son of the late Mr. Eduard Argyle of Kyneton, Victoria, and was educated at the Hawthorn Grammar School and the University of Melbourne. He graduated M.B. in 1891, and took the M.R.C.S. in 1892. During the war of 1914–18 he served as a lieutenant-colonel with the Australian Army Medical Corps. Until he entered politics in 1920 he specialized in radiology, having been consulting radiologist to the Alfred Hospital, Melbourne. He became the member for Toorak in the Australian Legislative Assembly in 1920; was Chief Secretary and Minister of Health for the State of Victoria in 1923–4, 1924–7, and 1928–9; and Leader of the Opposition in the Victorian Parliament from 1930 to 1932 and since 1935. He had been a member of the Kew Municipal Council for many years, and for two years was mayor of Kew. The culminating point in his political career came in 1932, when he was elected Premier, Treasurer, and Minister of Health for Victoria, positions he held until 1935. He had been a member of the British Medical Association for thirty-four years, and in 1925–6 was president of the Victorian Branch. He was created a K.B.E. in 1930. He married Violet, daughter of Mr. T. Lewis, and had two sons and two daughters.

Dr. BASIL VERNON WARD of Wallasey, who died on November 13 after a short but painful illness, qualified M.B., B.Ch. from Owens College, Manchester, in 1908. He was house-physician and house-surgeon at Manchester Royal Infirmary and for some time was in practice at Berkswell, Warwick. In 1916 he gave up this practice to join the R.A.M.C., retiring with the rank of captain in 1919 after having seen service in Mesopotamia. In 1920 he settled in Wallasey, taking over the practice of the late Dr. Sanderson. "Dr. Ward's many fine qualities," writes a correspondent, "modesty, good nature, and straight dealing, endeared him to his colleagues, especially those who worked with him on the staff of the Victoria Central Hospital, Wallasey, where for the greater part of his life he was senior anaesthetist. There he distinguished himself by a quiet confidence and a display of skill which was always a comfort to his professional colleagues. In committee he was diffident, rarely giving expression to his opinions, but when he did it was with a clarity and force which commanded attention. On social occasions he was a good companion, and we who knew him so well will often recall his humorous rendering of old ballads at dinners of the Wallasey Medical Society. He will long be remembered by numerous patients as their 'Beloved Physician,' who was always their good friend."

Dr. CHARLES KINGSLEY ACKLAND, who died suddenly on November 15, was the son of Dr. W. H. Ackland, and was born at Bideford in 1859. In his schooldays he was a contemporary of Rudyard Kipling at the United Service College, Westward Ho! He received his medical education at King's College Hospital, where he was one of Lord Lister's dressers, and qualified L.S.A. in 1884 and took the M.R.C.S., L.R.C.P. in the following year. A year later he joined his father in practice at Bideford, and there he continued the work of a large general practice for the remainder of his long life, a period of fifty-five years. He was on the staff of Bideford Hospital for over fifty years, and was a member of the British Medical Association for thirty-eight years, being chairman of the Barnstaple Division in 1931–2. Dr. Ackland is survived by a widow and two daughters.

We regret to record the death on November 16 of Dr. MALCOLM MCLEOD, who was in practice in Hull. Dr. McLeod qualified in 1922 and took the M.B., Ch.B. Glasgow in 1923. He held the posts of house-surgeon to the Royal Infirmary, Glasgow, house-physician to Dumfries Royal Infirmary, and resident physician to the Bellahouston Hospital, Glasgow. Dr. McLeod had a large general and panel practice and was a divisional police surgeon. In the last war he served in the ranks.

We regret to announce the death on November 19, as the result of an accident, of Dr. ARDESHIR DADABHAI JILLA. Dr. Jilla was born at Naigaum, Bombay, on December 22, 1879, the son of Mr. Dadabhai B. Jilla, was educated at Fort High School and Grant Medical College, Bombay, and qualified L.M.S.Bombay in 1904. Before coming to practise in London he was medical officer in charge of the Gikiyanakanda Estate, Neboda, Ceylon, and chief medical officer at Chhota in the Udaipur State. Dr. Jilla's contributions to medical literature included papers on plague, published in the *Journal* of the Ceylon Branch of the British Medical Association in 1914, guinea-worm and dog-bite poisoning, a note on care of the teeth, published in the *British Medical Journal* of September 23, 1922, and a paper on dyspepsia, read before the Lambeth and Southwark Division of the Association in 1925. He had been a member of the British Medical Association for nineteen years.

In the *Rationalist Annual* for 1941 Sir Arthur Keith concludes a stimulating essay on human nature with the following statement: "For my own part I shall stand up to what is to come under the present scheme of things and brace myself in Nature's old tribal armament—the mental armament of courage, resource, endurance, with a love of country and a zest for life. I shall try to keep my upper faculties so that they have a firm hand on my instincts, and I shall continue to be moved, to the best of my judgment, in showing mercy and doing justice."

Medical Notes in Parliament

London Shelters: Health Commissioner Urged

During the debate on the Address to the King, on November 26, Mr. KENNETH LINDSAY, referring to the Horder report, said that twice in the previous week the House of Commons had been told that there was not a report but only a verbal intimation, and that the report could not, for security reasons, be published. That was misleading, and the matter ought to be cleared up. If the preliminary recommendations, which he assumed, were written, had been published two months ago, they would have given to the hundreds of workers in London, apart from borough medical officers of health, some clear lines on which to work. The absence of the recommendations had meant that many voluntary workers and others had not been clear on Government policy. Some 750,000 persons took shelter in London, and he urged the relevant Ministers either to appoint a health commissioner with full plenary powers for London—preferably Lord Horder himself—which would be of great assistance; or, if not, to make more real the line of organization between the Ministry of Health and the Regional Commissioners. The Minister of Home Security had a direct relation with the Commissioners in London and the country, but the Minister of Health had no such direct relation with the Commissioners. There was a Ministry of Health official, who was not a Commissioner, situated with the four or five Commissioners in London, but he had no executive powers. The matter was so serious from the point of view of health that it could not wait another week.

EARL WINTERTON said it was no good appointing more medical inspectors from the Ministry of Health. That would only increase the number of people who came between the Minister and executive action. Action at the periphery was wanted, with more people in the borough engineers' departments, even bringing in the Army again. The Royal Engineers should go round the shelters doing the structural alterations and making the necessary improvements.

Mr. ATTLEE, in reply, said undoubtedly there was still much to be done in regard to shelters, although the work was going forward. He was in the Ratcliffe area of his constituency (Limehouse) on the previous Saturday, and was pleased to see that arches there were being drained and protected from damp.

Tannic Acid in the Treatment of Burns

On November 26 Mr. MACDONALD told Mr. Thurtle that it was on expert medical advice that the Ministry of Health recommended to all air-raid precautions authorities that tannic acid was the most efficacious treatment for burns and urged that the necessary stocks should be acquired for such treatment. It was on the advice of the same experts that the authorities were now being advised that this treatment was unsatisfactory. Experience in the past few months, which in the case of burns had been much wider than it could ever be in peacetime or in the last war, had shown that tannic acid treatment was not satisfactory for certain types of burns. With the co-operation of the Medical Research Council the situation was being watched closely by experts of world-wide reputation.

Calling Up of Doctors

In a question on November 26 Mr. GROVES asserted that there was disquiet among medical practitioners at the procedure adopted by the Central Medical War Committee. He said the Committee was trying to cause doctors busily engaged in civilian practice to be called up for the Services while many doctors who had volunteered for service, and were anxious to serve, were overlooked. Mr. MACDONALD replied on November 28 that in selecting doctors to be recommended for commissions in H.M. Forces the Central Medical War Committee had always drawn on its voluntary list, made up of doctors who had asked for their names to be put forward for commissions, before calling up under the compulsory procedure those engaged in civilian practice. It was not necessary, therefore, for him to take action. He was alive to the

necessity for safeguarding the health needs of the whole community and the importance of maintaining an equitable balance between the many demands on the medical personnel available.

Private Houses as Hospitals

Replying to Miss Cazalet on November 26, Mr. MACDONALD announced that under the Emergency Hospital Scheme arrangements were being made by the War Organization of the British Red Cross Society and Order of St. John of Jerusalem to open approximately 200 private houses as auxiliary hospitals. So far only seventy of these were ready to receive patients, approximately 50% of the beds being occupied. He added that a considerable reserve of empty beds must be kept for casualties and sick during the winter months. In addition, 150 houses were being adapted and equipped as annexes to existing hospitals. These annexes were brought into use as part of the parent hospital as soon as they were open. The majority of the 350 houses were in reception areas.

Tetanus Inoculation in B.E.F.

On November 26 Mr. EDEN, replying to Mr. Leach, said he was not prepared to state the number of men in the British Expeditionary Force who were wounded, and he was unable to say how many of them had been previously inoculated with anti-tetanus toxoid or received prophylactic doses of tetanus antitoxin. There were eight cases of tetanus. Three of these had received prophylactic tetanus antitoxin, but none had been previously immunized with tetanus toxoid.

American Doctors in the United Kingdom

Sir THOMAS MOORE asked on November 27 why American doctors graduating in the United Kingdom were not allowed to work there instead of priority arrangements being made for their return to the United States. Mr. PEAKE said it would not be in the interests of the British medical profession that all persons who came to the United Kingdom for a course of study or to obtain a British medical qualification should be free to establish themselves here as medical practitioners. The practice had been to admit such visitors on the understanding that they would leave when they had completed their course of study. It had recently been decided that, in existing circumstances, Americans and nationals of other friendly countries who had obtained a British degree might remain here temporarily and be allowed to take appointments such as those of house-surgeon or physician in a hospital, or the position of assistant or locumtenent to a British medical practitioner. Mr. DAVIDSON suggested the setting up of a separate wartime register in order to utilize fully the services of these doctors. Mr. PEAKE said the proposal would have to be carefully considered.

Sir FRANCIS FREMANTLE remarked that American doctors had varied qualifications, many of which were unsuitable. Others were very good and ought to be used. There should, he thought, be some distinction.

Departmental Responsibility for Shelters

Mr. HERBERT MORRISON stated on November 28 that the Ministry of Home Security was the central Department primarily responsible for shelter policy, but the Ministry of Health undertook responsibility for matters relating specifically to public health. Under this arrangement the Ministry of Health was the executive authority for the appointment of doctors and nurses to attend persons in shelters, medical inspection, and measures to prevent the spread of disease. The Ministry of Home Security was the executive authority for matters arising out of the design and construction of shelters and their fittings. He added that in matters affecting public health, whether directly or indirectly, close liaison was maintained between the two Departments. Circulars or general statements on these matters were not issued by one Department without prior consultation with the other.

Executive Officers of E.M.S. Hospitals.—Mr. MACDONALD on November 21 told Mr. Groves that he had seen it stated in the medical press that doctors attached to Emergency Medical Service hospitals complained there were often four largely independent executive officers in different towns in respect of a single hospital. He said these officers were not independent of one another, and their respective functions had been defined. There was no reason why delay or difficulty should occur if the instructions were properly observed. The arrangements were kept constantly under review by his officers.

Purchase Tax on Drugs.—On November 26 Sir KINGSLEY WOOD informed Mr. Naylor that halibut-liver oil was not chargeable with purchase tax. Olive oil was liable to tax if put up for medicinal, veterinary, or toilet use, and liquid paraffin was also liable to tax. The only exception from the statutory heading was in respect of "essential drugs of an exceptionally costly character," and it was not considered that either of the substances mentioned came within this category.

Supply of Glycerin.—The glycerin position is being carefully watched by the Ministry of Supply, and steps have been taken to conserve supplies. An investigation of the uses to which glycerin is put has been made. A generous quota has been allotted for medicinal uses, the total amount allowed being approximately two-thirds of the pre-war consumption.

Diphtheria Immunization in Lincolnshire.—Immunization against diphtheria by local authorities was first introduced into the county of Holland, Lincolnshire, in 1933. The total number of children immunized during the years 1933 to 1939 inclusive was 12,628, giving an average yearly figure of 1,804, but 8,962 out of the total of 12,628 were immunized in 1939. It is estimated that about 60% of the present child population of the county of and below school age are immunized.

Notes in Brief

Mr. Herbert Morrison said on November 7 that after consultation with Mr. Malcolm MacDonald he was satisfied the appointment of a Health Commissioner for London was not necessary. The problem could best be handled by the existing organization, both central and local.

No interdepartmental committee has been set up to consider problems of rehabilitation of war-disabled persons, but officers of the Ministry of Health examined with those of other Departments certain aspects of these problems. Mr. MacDonald hopes to receive their proposals shortly.

Mr. MacDonald has approved the establishment by local authorities of twenty-two day nurseries for children whose mothers are munition workers. The estimated cost of a day nursery is 3s. per attendance; of this, 1s. is being met from taxes, and usually the parents are asked to pay 1s., the balance being met from the rates.

The attention of officers recruiting for the Royal Air Force was recently drawn to an instruction that inoculation and vaccination can only be done by consent, and that recruits must not be rejected if they refuse.

At all hospitals in the Emergency Hospital Scheme, whether special neurosis centres or not, civilian psychiatrists are available for consultant advice as regards Service or other patients.

Lord Woolton is advised that cream is not a necessary item in the diet of any invalid.

The Services

CASUALTIES IN THE MEDICAL SERVICES

ROYAL NAVY

Surgeon Lieut. JAMES GILBERTSON, R.N.V.R., who was killed in action in November, was the eldest son of Dr. A. J. Gilbertson of Sunderland, and graduated M.B., B.S. of the University of Durham in 1938.

ROYAL ARMY MEDICAL CORPS

Captain WILLIAM THOMAS MALCOLM MOAR, R.A.M.C., died on active service in November. He qualified M.R.C.S., L.R.C.P. in 1935 and entered the R.A.M.C. as lieutenant in 1936, becoming captain in 1937. He had been a member of the British Medical Association since 1936.

Prisoners of War

Major Edward Robert Charles Walker.
Acting Major Claude Wilfred Alfred Kimbell.
Captain (War Substantive) Norman Duncan Allan.
Captain (War Substantive) Scott Gladstone Cowper.
Lieut. Bernard John Harries.
Lieut. Roderick Mackay.
Lieut. Alexander Macnab.
Lieut. Robert Dugald Monteith.
Lieut. John Henry Mulligan.

No. 44

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended November 2, 1940.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1940					1939 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	132	3	23	1	3	16	—	8	2	1
Deaths		—	2				—	1		
Diphtheria	1,282	39	489	28	36	883	25	213	49	37
Deaths	33	1	10	—	6	22	1	6	8	1
Dysentery	81	—	39	1	—	47	—	50	—	—
Deaths			1	—	—			—	—	—
Encephalitis lethargica, acute	3	—	—	—	—	7	—	—	1	—
Deaths		2	—				—	1		
Enteric (typhoid and paratyphoid) fever	28	2	10	1	1	36	—	4	4	5
Deaths	2	—	—	—	—	3	—	—	—	—
Erysipelas		17	63	5	3			75	10	8
Deaths		—	—				1	2		
Infective enteritis or diarrhoea under 2 years	43	6	14	9	2	23	4	19	5	5
Deaths										
Measles	12,592	176	458		14	175	8	9		12
Deaths	25	—	2	1	—	—	—	—	—	—
Ophthalmia neonatorum	76	1	21		—	74	6	9		—
Deaths										
Pneumonia, influenzal*	572	34	11	1	3	534	41	10	2	4
Deaths (from influenza)	20	4	1	—	—	40	4	7	1	2
Pneumonia, primary			156	10				134	15	
Deaths†		58		16	7		7		9	19
Polio-encephalitis, acute	5	—				3	—			
Deaths		—					—			
Poliomyelitis, acute	34	—	9	—	—	18	1	1	—	—
Deaths		1	—				—	1		
Puerperal fever	1	1	12	3	1	4	4	11	1	—
Deaths		—					—			
Puerperal pyrexia	119	3	21		—	142	6	19		3
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,789	50	266	73	52	1,333	33	214	52	122
Deaths	2	—	—	—	—	3	1	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths		—	—	—	—		—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,740	11	129		22	143	26	42		3
Deaths	14	2	—	1	—	5	1	1	1	—
Deaths (0-1 year)	327	28	58	21	15	255	27	78	15	18
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,502	1,322	587	169	108	4,924	769	660	168	134
Annual death rate (per 1,000 persons living)			11.9	11.3	9.5			13.4	11.3	11.8
Live births	5,011	481	730	253	182	5,800	691	798	312	239
Annual rate per 1,000 persons living			14.8	16.9	15.9			16.2	21.0	21.0
Stillbirths	219	24	31			207	18	31		
Rate per 1,000 total births (including stillborn)			41					37		

* Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

† Since January 1, 1940, figures for London (b) have been for deaths from all forms of pneumonia; the corresponding figures for 1939 relate to deaths from lobar pneumonia only.

EPIDEMIOLOGICAL NOTES

Infectious Diseases for the Week

Of the four most prevalent infectious diseases in this country the incidence of measles and whooping-cough has increased while that of diphtheria and scarlet fever has fallen. Although notifications of diphtheria and scarlet fever are in excess of those in the corresponding week last year, they are lower than those of 1938. In contrast with England and Wales notification of measles and whooping-cough is not compulsory in Scotland, but local authorities may adopt some form of notification, or "intimation" as it is frequently termed, as circumstances require. The figures given for Scotland do not therefore represent the actual incidence of these diseases, but in areas which have adopted the measure they provide a rough guide to their prevalence in the whole country. Of the sixty-one administrative areas 4—Ely, Rutland, Cardigan, and Carmarthen—were free from whooping-cough, and two, Lincoln (Kesteven) and Anglesey, free from both whooping-cough and measles. Counties in which both diseases are prevalent, figures for whooping-cough in parentheses, are: Lancaster 2,589 (343); Yorks, West Riding 2,511 (137); Derby 726 (48); Chester 682 (45); Northampton 556 (23); Middlesex 415 (63); Durham 410 (48); Northumberland 378 (27). In Scotland notifications were received from the counties of Lanark 43 (7); Clackmannan 2; Inverness 1; Renfrew 1; and the burghs of Aberdeen 106 (4); Dundee 75 (28); Glasgow 63 (36); Edinburgh 49 (5); Falkirk 37; Paisley 33 (22); Greenock 21 (17); Kirkcaldy 11 (1); Port Glasgow 8; Dunfermline 7 (8); Ayr 1 (1).

Dysentery has tended to increase in the last two weeks, but apart from an outbreak in a rural area, where more than one-half the cases were notified, it remains a comparatively rare disease.

MEDICAL AID POSTS IN AIR-RAID SHELTERS

The following directions, which have been agreed with the Ministry of Home Security, on the provision for medical aid posts in public air-raid shelters have been sent by the Ministry of Health to London local authorities, including the boroughs of East and West Ham, and to their medical officers of health. A schedule of equipment accompanied the circular.

In each large shelter there should, if possible, be provided space for an apartment containing equipment for dealing with minor ailments and accidents, screened off from the main part of the shelter. Wherever space permits, beds and bunks should be provided to each medical aid post at the rate of two beds and three 3-tier bunks or similar accommodation for every 500 persons in the larger shelters. A space of six feet should be allowed between the centres of adjacent beds. The bunks should be placed immediately near the unticketed bunks so as to allow the expansion of the apartment if necessary by the use of portable screens. The same allocation should be adopted in the case of a group of contiguous smaller shelters. In large shelters the apartment should, if possible, be wide enough to allow the provision of screens for simple medical examination, together with such equipment as tables, chairs, cupboards, etc.

The bunks will be supplied by the Ministry of Home Security. It is thought that beds and bedding, screens, tables, chairs, and any necessary cupboards for instruments and medicines can in many cases be made available on loan from premises in which the shelters are situated or from local authorities' own stocks. In other cases demands should be made to Division VIIIe, Ministry of Health, Whitehall.

Many items on the schedule also appear on the schedules of equipment for casualty services already supplied from Government sources. These supplies should be used as a common pool and drawn upon for the medical aid posts. Requisitions for any additional quantities needed for the equipment of the medical aid posts or for items on the medical aid post schedule, but not on the general schedules mentioned above, should be submitted in duplicate to Division VIIIe, Ministry of Health, Whitehall.

Medical News

The Finney-Howell Research Foundation announces that all applications for fellowships for next year must be filed in the office of the Foundation, 1211, Cathedral Street, Baltimore, Maryland, by January 1, 1941. Applications received after that date cannot be considered for 1941 awards, which will be made on March 1. This foundation was provided for in the will of the late Dr. George Walker of Baltimore for the support of "research work into the cause or causes and the treatment of cancer." The will directed that the surplus income from the assets of the Foundation, together with the principal sum, should be expended within a period of ten years to support a number of fellowships in cancer research, each carrying an annual stipend of $2,000, "in such universities, laboratories, and other institutions, wherever situated, as may be approved by the Board of Directors." Fellowships carrying an annual stipend of $2,000 are awarded for the period of one year, with the possibility of renewal up to three years; when deemed wise by the Board of Directors special grants of limited sums may be made to support the work carried on under a fellowship. Applications must be made on the blank forms which will be furnished by the secretary.

The meeting of the Section of Therapeutics of the Royal Society of Medicine arranged for December 10 has been postponed until Tuesday, January 14, 1941, at 2.30 p.m. The subject for discussion will be "Active Immunization—Some Present-day Problems," and will be opened by Dr. H. J. Parish and Dr. I. H. Maclean.

A meeting of the Pharmaceutical Society of Great Britain will be held at 17, Bloomsbury Square, W.C., on Wednesday, December 11, at 2.30 p.m., when Mr. A. L. Bacharach will give an address entitled "Some Nutritional Problems of War and Peace."

The House and Library of the Royal Society of Medicine will be closed on Wednesday and Thursday, December 25 and 26.

Local emergency organizations are asked in a recent Ministry of Health circular to arrange refresher courses for members of the Civil Nursing Reserve who are not in active employment as members. These should consist in the case of trained and assistant nurses of a week's residential course each year at an E.M.S. hospital on recent advances in treatment, and in the case of nursing auxiliaries of six lectures in first aid, six lectures in home nursing, and fifty hours' hospital experience.

We are asked to announce that, since some confusion has arisen, it should be noted that work at the Tavistock Clinic continues as usual, at Westfield College, Kidderpore Avenue, N.W.3 (telephone, Hampstead 0136). Since the outbreak of war the waiting list has been abolished both for adults and for children.

An appeal is made for the following items for the Army now serving in the Middle East: metal shaving mirrors, sun goggles, batchelor buttons, housewives, shaving brushes, toothbrushes, soap containers, hand towels, sweets and chocolates in tins, chewing gum, toilet soap, shaving soap, razors, razor blades, writing pads, and pencils. They should be sent direct to the Officer in Charge, Army Comforts Depot, Reading, where they will be packed for dispatch abroad.

A mobile chemical warfare defence laboratory has been added to the equipment of the Canadian Forces. It will operate in front-line areas, with either Canadian or British troops, its purpose being to ascertain at once in the area concerned the character and effects of any new gas which the enemy may use.

More than 1,500 men and women in New York City have given a pint each of their blood for making blood plasma, which is being sent to England for the treatment in the London area of sufferers from shock and for general use in surgery.

Dr. W. S. Russell Thomas (Liberal National) has been returned unopposed as M.P. for Southampton in the vacancy caused by the elevation to the peerage of Sir John Reith.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Blood-stained Semen

Dr. J. D. ROLLESTON writes: This phenomenon (November 9, p. 655, and 23, p. 729) seems to have been well known to the earlier writers. In my paper on "The Medical Aspects of Casanova's *Mémoires*" (*Janus*, 1917, **22**, 115) I noted that this sexual athlete presented it on several occasions after repeated coitus (*Mémoires*, ed. Flammarion, **2**, 428; **4**, 286, 518; **5**, 372), and that it had been described by earlier writers, such as Ambroise Paré (1641), Schenk (1609), Schurig (1609), and Sauvages (1765), as well as by modern writers, such as Jamin (1891), Hugues (1894), Lydston (1899), Hutchinson (1899), and Chute (1903). It was probably not unknown to the laity, as the alarm expressed by his partners on its occurrence was not shared by Casanova himself.

Disfigurement of Nails

"E. M." writes in reply to "Digit" (November 2, p. 618): In a very similar case rubbing haliverol each night into the nails and then immersing the fingers in the oil for some minutes proved very satisfactory after a couple of months. A glove should be worn at night to retain the oil. The patient took calcium daily, but it may not have been necessary.

Constipation following Appendicectomy

Dr. H. MARK PALMER (Byfleet) writes: In reply to "M.B., M.R.C.S." (November 23, p. 729) the following may be helpful. The word "constipation" has come to be used for conditions other than it should. It is derived from "stipare"—pack; hence "stipate"—crowded. A constipated bowel is one loaded, packed, or crowded with faeces. Treatment should include unloading the bowel by aperients, purgatives, or enemata, and adjustment of the diet and mode of living. This condition should not be confused with what may be described as "bowel pause or rest." In the latter nothing is felt per rectum or on palpation. No treatment is necessary in "bowel rest"; enemata and aperients are not indicated, as there is nothing to remove from the bowel. The bowel is a secretory organ as well as an excretory physiological machine. A proportion of the faeces—often a large proportion—is secreted by the cells of the gut wall. The rest is residue from "roughage" ingested. The quantity of roughage in the usual diet is small compared with the total quantity of food taken in, so the bulk of the faeces must be secreted into the gut lumen. In bowel pause or rest this secretory process is temporarily at rest, and may remain more or less quiescent for many days. Meanwhile the other excretory systems undertake the work satisfactorily. When the bowel is rested the secretory process begins again, and a normal motion is passed with, as a rule, hardly any signs of age—that is, like constipated faeces. The causes of bowel pause are not clear; but unlike paralytic ileus the condition occurs during convalescence after trauma of gut anywhere (including appendicectomy); recently healed ulcerative conditions; fatigue following intestinal infections, with diarrhoea, purgatives, enemata; and neuroses.

Income Tax

Change of Work

"J. R." held a whole-time salaried post up to October 1, 1938, as from which date he accepted an appointment elsewhere with which was associated private work for which he retained two-thirds of the fees. In November, 1938, the inspector for his then district in reply to an inquiry stated that the previous year's basis would continue to apply to 1937–8. The inspector for his new district, however, now wishes to revise the compu-

tation of his liability for all years from 1937–8 onwards, treating him as having ceased his old employment and begun a new source of income about October, 1938.

*** The computations as revised appear to be legally correct, and the additional assessment for 1937–8 can be made either at the new address or as at the old place of employment. At the same time we suggest that our correspondent should press upon the inspector with whom he is in correspondence the hardship which will be inflicted upon him if, after receiving an assurance two years ago with regard to 1937–8, he is compelled at this date to pay further tax for that year. Failing satisfaction at the hands of the inspector, a note of the facts might be sent to the Chief Inspector of Taxes, Somerset House, W.C.2.

Life Membership Subscription

"R. H." has in past years deducted £1 per annum, subscription to the Medical Defence Union. Last year he paid £17 as a life membership subscription, and deduction of that sum has been refused. Is this correct?

*** Although an annual subscription is allowable as an expense incurred in earning the profits assessed, this does not apply to a life membership subscription. Such a payment is made to bring into existence an enduring benefit and ranks as a capital payment.

LETTERS, NOTES, ETC.

Our Unused Influence

Dr. PARKES WEBER writes: In the discussion on the above subject Dr. J. Shepherd (November 16, p. 686) says he is puzzled as to what my letter (November 2, p. 614) really signifies. Amongst other things it signifies that in my opinion it is unjust during an established war to blame a man because, according to his convictions, before or at the commencement of the war he would have liked to prevent or abort it. I am certainly not going to mention the names of individuals who have been imprisoned, but Dr. Shepherd with a little trouble may be able to confirm or negative my statement by applying to persons who were formerly connected with societies interested in promoting friendliness and peace between nations; owing partly to want of time and partly to indolence I never was so connected myself. Dr. A. Nicholls (November 16, p. 686) writes in regard to those temporarily imprisoned for political reasons of the kind that "if they are real patriots and good Britishers they'll grumble and stick it." Yes! I quite agree. A peace advocate must not squeal when, on the outbreak of war, he is suspected of being a "fifth columnist," any more than a warmonger should squeal at disagreeable results for him of the war which he in a small way has helped to bring about. Yet, if it be true that a democracy in time of war still remains a free country, the former peace advocate may protest against what he regards as unjust suspicion, even though he does not squeal. Moreover, it seems to me that many civilians of other nationalities in Great Britain have shown themselves capable of bearing undeserved loss of liberty quite as well as Britishers, and there is no reason to expect that after the war these aliens will nourish undue resentment on account of their unfortunate experiences. Although peace propaganda can obviously not be discussed here in the middle of a raging war, if doctors wish to meditate usefully on a political subject with which they must be familiar, I would put forward the vital question of unemployment. This difficult democratic and capitalistic problem is certain to arise again in all its urgency after the war. Whilst spending night after night in a third-story London flat, with the habitual noisy concert in progress, accompanied by an occasional seismological-like tremor, the question of remedying unemployment is just the right subject to think of. If meditation on such a subject fails to help to build a new Jerusalem "in England's green and pleasant land," it will perhaps exercise a soporific effect on the thinker, at least as good as that induced by counting sheep or by barbituric drugs.

*** Although correspondence on this subject has been closed, we could not deny Dr. Parkes Weber the right to reply to questions put to him.

Strangulated Hernia in Infancy

Dr. MAURICE JAGO (Sutton, Surrey) writes: The *British Journal of Surgery* for January, 1927, records a case in an infant of 5 days, operated on under gas-and-oxygen. I recorded a successful case in the *Lancet* of March 3, 1928, this being in a twin of 14 days, operated on under stovaine spinal anaesthesia by myself.

Dr. R. H. DIX (Sunderland) writes: May I enter for the youngest-ever stakes? My youngest strangulated hernia, which occurred in my own practice and which I did at the Children's Hospital here, was in an infant of 8 days. I have verified it in the operation book at the hospital this morning: Operation 2/4/23, age 8/365 year.

Ingrowing Toenail

Dr. C. HORWITZ (London, S.W.1) writes: I have read your correspondence (November 2, p. 681) under this heading. I have treated cases, including my own, in a very simple and effective manner. Solid copper sulphate (blue stone) is wetted and thoroughly rubbed into the offending nail. What could be simpler? I do not pretend to know how it acts, but it has afforded great relief. If the blue is washed off by the morning bath it should be reapplied for a few days.

Combating Cold and Damp

Mr. R. KENNON, F.R.C.S. (Liverpool) writes: In the last war we did what we could to keep warm and dry. The following notes may be useful to those faced with the same problem now. In a dug-out, eight feet by six, a fire was made on the floor, and above it a sheet of corrugated iron was slung from the flimsy roof. On this a light duty man dried the company's socks and clothes. This made a change of socks possible once or twice a day for each man, and with a brisk towelling during the change "trench foot" could be kept within bounds. A little imagination will improve upon the following conditions in any locality. In the country an outhouse with an opaque roof can have its fire upon the floor—of wood, or, less likely, of coal. The furnace can heat a converted greenhouse, or the incinerator can be arranged to supply the necessary heat to a hut above. In town billets one kitchen in ten could be reserved for this purpose, given a reasonable fire. Where gas is available gas rings could be placed upon the stone floor of the scullery and covered with corrugated iron with or without its plaster board protection, or asbestos. Where electricity is forthcoming bar radiators can be fitted on the walls of a deserted upper room, and will create enough heat for the purpose. This reservation of a room within a house as a drying room might be extended to reservation of the whole billet to house for the night those who have been completely drenched—especially in the women's services. In big camps the drying machines of laundries should be called into service. A drying room is as essential to a modern army as a decontamination room, and the latter could be used for this purpose.

Prevention of Louse Infestation

Dr. L. C. BRUCE (Lockerbie) writes: During the war of 1914–18 I found the following method of prevention quite efficient. Take enough blue ointment and soft white twine, and rub the ointment well into the twine. Tie a necklace of the medicated twine loosely round the neck, one circle round and above each elbow, one round and above each knee, and a loose circle round the abdomen. The effect is this: the warmth and the perspiration of the body melt the ointment and cover the body with a very tenuous covering of mercury, which is fatal to the louse when it starts feeding. The amount of blue ointment necessary for one application was roughly the size of a hazel nut. I only carried a sufficient quantity of the ointment for my own use, and a suggestion that this preventive method should be tried on a battalion was refused. This method was given to me by a Canadian trapper, who had proved its efficacy. I also have used it in insanitary surroundings on hunting trips in Europe. It does not necessarily follow that because this method was a success when used by my Canadian friend and myself that it will be a success when applied to a large body of troops, but it is well worth a trial, and now.

Virus of Rubella

Dr. G. BROCK writes from Cambridge: Dr. A. Sprott (August 3, p. 154) asks: "Is the virus of rubella becoming neurotrophic (and rheumatic)?" referring to eight patients with rheumatic or neuritic complications whose ages were 18 to 68 years. The feverish metabolism and, in infectious diseases, the decomposition of the infective material produce chemical substances whose effects are, after absorption, similar to those of injected proteins—that is, activation of old centres of restored diseases. At large children do not possess any or many old centres that older people possess, and so we may understand the differences of the course and picture of the same disease in children and older people without neurotrophism.

In the same way we understand the immaturity of the serum of the newborn. We are sent into the world like a sheet of paper, coloured by inherited qualities only, not yet written on by the environments we shall have to endure. Later on we are like palimpsests, those ancient parchments whose former inscriptions are to be erased when there are new ones to be written on.

Familial Longevity

Captain Edward T. Miles of Hobart, a former member of the Tasmania House of Assembly and Minister of Lands and Works in 1890, recently celebrated his ninety-first birthday. His brother, Mr. Alfred Miles of Sydney, was 103 on August 1. Their mother, also a native of Hobart, died at the age of 102.